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Fraternally,

C. M. Van Poole, M.D.

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

FIFTY-EIGHT ANNUAL MEETING

HELD AT

CHARLOTTE, N. C.

JUNE 20,-22 1911

PRESIDENT, DR. C. M. VAN POOLE, SALISBURY.
SECRETARY, DR. DAVID A. STANTON, HIGH POINT.

EDITED FOR THE ASSOCIATION BY D. A. STANTON, M.D.

Charlotte
OBSERVER PRINITING HOUSE
1911

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Dr. E. C. Register.....Charlotte
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"It is to be understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the transactions of the Society."—*Extract from By-Laws, chap.* 10, *sec.* 8

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ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1911.

*Missing Data not to be Found in Records.

	Date	Place.	Members in Attendance.	President.	Vice-Presidents.	Secretary.	Treasurer	Members on Roll.*	Honorary Members.*	Honorary Fellow.*
	1849	Raleigh	25	F. J. Hill	.....	W. H. McKee	.....	25	....	....
1	1850	Raleigh	21	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	....
2	1851	Raleigh	23	Edmund Strudwick	C. E. Johnson.	W. H. McKee	W. G. Hill	46	9	....
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	....
4	1853	Fayetteville	24	J. E. Williamson	Wm. G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	....
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	....
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	....
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	....
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	....
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	....
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham	....	....	....
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	....
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	....
13	1866	Raleigh	20	J. J. Summerell	.....	W. G. Thomas	C. W. Graham	....	....	....
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	....
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George E. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones	....	....	....
16	1869	Salisbury	36	E. Burke Haywood	Thos. E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones	....	....	....
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones	....	....	....
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones	....	....	....

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA—Continued.

*Missing Data not to be Found in Records.

	Date	Place	Members in Attendance.	Presidents.	Vice-Presidents.	Secretary.	Treasurer	Members on Roll.*	Honorary Members.*	Honorary Fellows.*
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones	....	....	....
20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Chas. Duffy, T. P. Jerman.	James McKee	H. T. Bahnson.	....	....	....
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson.	126	5	...
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, Wm. Little, D. N. Patterson.	James McKee	H. T. Bahnson.	148	5	....
23	1876	Fayetteville	33	Peter E. Hines	Jos. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson.	157	4	....
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	....
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	....
26	1879	Greensboro	109	Charles Duffy, Jr.	J. A. Gibson, Willis Alston, Jas. McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	....
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	....
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	....
29	1882	Concord	65	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	....
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	....
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	....
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	....
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr	438	7	....
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	....

35	1888	Fayetteville.....	133	T. D. Haigh	W. P. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker.....	C. M. Poole....	306	6	....
36	1889	Elizabeth City....	50	W. T. Ennett.....	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker.....	C. M. Poole....	410	6	....
37	1890	Oxford.....	160	G. G. Thomas.....	R. L. Payne, Jr., Richard Dillard, S. W. Booth	J. M. Hays.....	C. M. Poole....	414	6	....
38	1891	Asheville.....	135	R. H. Lewis.....	S. W. Battle, J. L. Nicholson, W. H. Lily	J. M. Hays.....	C. M. Poole....	422	6	....
39	1892	Wilmington.....	162	W. T. Cheatman.....	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays.....	C. M. Poole....	431	6	....
40	1893	Raleigh	221	J. W. McNeill.....	W. G. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett.....	M. P. Perry....	447	5	3
41	1894	Greensboro.....	166	W. H. H. Cobb.....	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett.....	M. P. Perry....	454	5	3
42	1895	Goldsboro.....	...	J. H. Tucker.....	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett.....	M. P. Perry....	436	7	3
43	1896	Winston-Salem....	158	R. L. Payne.....	S. D. Booth, J. P. Monroe, J. A. Boroughs, J. E. Grimsley.	R. D. Jewett.....	M. P. Perry....	452	7	3
44	1897	Morehead City...	103	P. L. Murphy.....	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett.....	M. P. Perry....	406	6	3
45	1898	Charlotte	...	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett.....	M. P. Perry....	437	6	p1
46	1899	Asheville.....	152	L. J. Picot.....	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	George W. Pressly..	G. T. Sikes.....	489	6	16
47	1900	Tarboro.....	115	George W. Long.....	C. M. Poole, Jas. M. Parrott, T. B. Williams, W. D. Hilliard.	George W. Pressly..	G. T. Sikes.....	482	6	21
48	1901	Durham.....	186	Julian M. Baker.....	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	George W. Pressly..	G. T. Sikes.....	515	5	18
49	1902	Wilmington.....	147	Robert S. Young.....	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	George W. Pressly..	G. T. Sikes.....	546	5	20
50	1903	Hot Springs.....	155	A. W. Knox.....	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way.....	G. T. Sikes.....	530	6	19
51	1904	Raleigh.....	326	H. B. Weaver.....	John Hay Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way.....	G. T. Sikes.....	1033	8	17
52	1905	Greensboro.....	361	David T. Tayloe.....	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way.....	G. T. Sikes.....	1175	8	17
53	1906	Charlotte.....	406	Edward C. Register...	L. B. McBrayer, W. H. H. Cobb, Jr., W. O. Spencer.	J. Howell Way.....	G. T. Sikes.....	1234	8	16
54	1907	Morehead City...	217	Samuel D. Booth.....	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton...	H.McKee Tucker	888	7	16
55	1908	Winston-Salem....	372	J. Howell Way.....	J. E. Stokes, J. A. Turner, W. H. Dixon.	David A. Stanton...	H.McKee Tucker	998	7	28
56	1909	Asheville.....	337	J. F. Highsmith.....	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton...	H.McKee Tucker	1067	7	25
57	1910	Wrightsville B'ch	276	E. J. Wood.....	John Q. Myers, L. B. Wharton.....	David A. Stanton...	H. D. Walker...	1080	8	35
58	1911	Charlotte.....	412	C. M. Van Poole.....	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton...	H. D. Walker..	880	8	45

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Frank H. Russell, Wilmington.....1902-1908

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Henry H. Dobson, Greensboro, Practice of Medicine.
John Bynum, Winston-Salem, Obsterics and Gynecology.
J. L. Nicholson, Richlands, Physiology and Hygiene.

NEXT ANNUAL SESSION AT HENDERSONVILLE, JUNE 18, 1912.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH, FROM ORGANIZATION IN 1877 to 1911.

Name	Address	Appointed by	Term.
S. S. Satchwell, M.D., President..	Rocky Point...	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington....	State Society	1877 to 1878
Joseph Graham, M.D.....	Charlotte.....	State Society	1877 to 1878
Charles Duffy, Jr., M.D.....	New Bern.....	State Society	1877 to 1878
Peter E. Hines, M.D.....	Raleigh.....	State Society	1877 to 1878
George A. Foote, M.D.....	Warrenton.....	State Society	1877 to 1878
S. S. Satchwell, M.D., President..	Rocky Point...	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington....	State Society	1878 to 1884
Chas. J. O'Hagan, M.D., President	Greenville.....	State Society	1878 to 1882
George A. Foote, M.D.....	Warrenton.....	State Society	1878 to 1882
Marcellus Whitehead, M.D.....	Salisbury.....	State Society	1878 to 1880
R. L. Payne, M.D.....	Lexington.....	State Society	1878 to 1880
H. G. Woodfin, M.D.....	Franklin.....	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist.....	Chapel Hill....	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer.....	Charlotte.....	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.....	Lexington.....	State Society	1881 to 1887
Marcellus Whitehead, M.D., Pres..	Salisbury.....	State Society	1881 to 1884
J. M. Lyle, M.D.....	Franklin.....	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer.....	Charlotte.....	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist.....	Wake Forest...	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President.....	Wake Forest...	State Society	1883 to 1889
John McDonald, M.D.....	Washington....	State Society	1883 to 1889
S. H. Lyle, M.D.....	Franklin.....	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist.....	Wake Forest...	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer..	Raleigh.....	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.....	Raleigh.....	State Board.....	1884 to 1893
Thomas F. Wood, M.D., Secretary	Wilmington....	State Society	1885 to 1887
William D. Hilliard, M.D.....	Asheville.....	State Society	1885 to 1891
Arthur Winslow, Civil Engineer...	Raleigh.....	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist.....	Wake Forest...	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.....	Henderson.....	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary.....	Raleigh.....	State Society	1887 to 1897
H. T. Bahnson, M.D., President...	Winston-Salem.	State Society	1887 to 1893
Arthur Winslow, Civil Engineer..	Raleigh.....	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist.....	Wake Forest...	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.....	Henderson.....	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.....	Henderson.....	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph.D., Chemist....	Chapel Hill....	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.....	Fayetteville....	State Society	1889 to 1892
J. M. Baker, M.D.....	Tarboro.....	State Society	1889 to 1893
J. H. Tucker, M.D.....	Henderson.....	Gov. T. M. Holt.	1891 to 1893
F. P. Venerable, Ph. D., Chemist..	Chapel Hill....	Gov. T. M. Holt.	1891 to 1893
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. T. M. Holt.	1891 to 1892
*Thomas F. Wood, M.D., Secretary	Wilmington....	State Society	1891 to 1897
George G. Thomas, M.D., Pres....	Wilmington....	State B. Health.	1892 to 1897
S. Westray Battle, M.D.....	Asheville.....	State Society	1891 to 1895
W. H. Harrell, M.D.....	Williamston....	State Society	1892 to 1895
John Whitehead, M.D.....	Salisbury.....	State B. Health..	1893 to 1895
W. H. G. Luvac.....	White Hall....	Gov. Elias Carr..	1893 to 1895
F. P. Venable, Ph.D., Chemist.....	Chapel Hill....	Gov. Elias Carr..	1893 to 1895
John C. Chase, Civil Engineer.....	Wilmington....	Gov. Elias Carr..	1893 to 1895
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. Elias Carr..	1893 to 1895
W. P. Beall, M.D.....	Greensboro.....	Gov. Elias Carr..	1894 to 1897
W. J. Lumsden, M.D.....	Elizabeth City.	Gov. Elias Carr..	1895 to 1897
John Whitehead, M.D.....	Salisbury.....	State Society	1895 to 1897
W. H. Harrell, M.D.....	Williamson.....	State Society	1895 to 1897
W. P. Beall, M.D.....	Greensboro.....	Gov. Elias Carr..	1895 to 1897
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. Elias Carr..	1895 to 1897

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

ROSTER OF MEMBERS—Continued.

Name	Address	Appointed by	Term.
F. P. Venable, Ph.D., Chemist....	Chapel Hill....	Gov. Elias Carr..	1895 to 1897
John C. Chase, Civil Engineer.....	Wilmington....	Gov. Elias Carr..	1895 to 1897
C. J. O'Hagan, M.D.....	Greenville.....	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.....	Goldsboro.....	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.....	Richlands.....	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Sanitary Engineer..	Raleigh.....	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.....	Greenville.....	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.....	Richlands.....	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.....	Wilson.....	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer.....	Raleigh.....	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington....	State Society	1899 to 1901
S. Westray Battle, M.D.....	Asheville.....	State Society	1899 to 1901
H. W. Lewis, M.D.....	Jackson.....	State Society	1899 to 1901
H. H. Dodson, M.D.....	Milton.....	State Society	1899 to 1901
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.....	Lenoir.....	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington....	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.....	New Bern.....	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. C. B. Aycock	1901 to 1903
S. Westray Battle, M.D.....	Asheville.....	State Society	1901 to 1907
H. W. Lewis, M.D.....	Northampton...	State Society	1901 to 1907
W. H. Whitehead, M.D.....	Rocky Mount..	State Society	1901 to 1905
J. L. Nicholson, M.D.....	Richlands.....	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.....	Waynesville....	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.....	Winston.....	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., Pres....	Wilmington....	State Society	1905 to 1911
Thomas E. Anderson, M.D.....	Statesville.....	State Society	1905 to 1911
R. H. Lewis, M.D.....	Raleigh.....	Gov. R. B. Glenn	1901 to 1913
E. C. Register, M.D.....	Charlotte.....	Gov. R. B. Glenn	1901 to 1913
David T. Tayloe, M.D.....	Washington....	State Society	1907 to 1913
*Jas. A. Burroughs, M.D.....	Asheville.....	State Society....	1907 to 1909
J. E. Ashcraft.....	Monroe.....	State Society	1909 to 1913
J. L. Ludlow, Civil Engineer.....	Winston-Salem.	Gov. W.W.Kitchen	1911 to 1917
J. Howell Way, M.D.....	Waynesville....	Gov. W.W.Kitchen	1911 to 1917
W. O. Spencer, M.D.....	Winston-Salem.	Gov. W.W.Kitchen	1911 to 1917
Thos. E. Anderson.....	Statesville.....	State Society	1911 to 1917
Chas. J. O'H. Laughinghouse.....	Greenville.....	State Society	1911 to 1917

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Name	Address
H. T. Bahnson	Winston-Salem.
W. W. Lane	Wilmington.
W. J. Love	Wilmington.
James McKee	Raleigh.
W. J. H. Bellamy	Wilmington.
W. I. Royster	Raleigh.
George G. Thomas	Wilmington.
Francis Duffy	New Bern.
F. J. Haywood	Raleigh.
P. A. Barrier	Mount Pleasant.
Geo. W. Long	Graham.
R. H. Speight	Whitakers.
R. J. Noble	Selma.
D. W. Bullock	Wilmington.
L. H. Hill	Germantown.
L. J. Picot	Raleigh.
R. H. Lewis	Raleigh.
J. W. McGee	Raleigh.
I. W. Faison	Charlotte.
C. E. Moore	Wilson.
Henry Tull	Kinston.
J. W. McNeill	Fayetteville.
W. P. Beall	Greensboro.
T. E. Anderson	Statesville.
R. H. Hargrove	Robersonville.
C. M. Poole	Salisbury.
H. T. Grantham	Salisbury.
W. M. Prince	Laurinburg.
A. W. Knox	Raleigh.
J. M. Baker	Tarboro.
J. L. Nicholson	Richlands.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Name	Address
L. McL. Tiffany	Baltimore, Md.
W. W. Keen	Philadelphia, Pa.
J. Allison Hodges	Richmond, Va.
R. L. Payne	Norfolk, Va.
W. L. Robinson	Danville, Va.
J. N. McCormack	Bowling Green, Ky.
J. C. Walton	Danville, Va.
R. L. Payne, Jr	Norfolk, Va.

June, 1911. Total membership Medical Society of the State of North Carolina including 31 honorary members, 954. Of the 98 counties of the State the Physicians of 96 counties are organized in county societies in affiliation with and component branches of the State Medical Society.

412 members registered at 1911 session. This number does not include applicants for license, visitors, solicitors or other than enrolled members.

OFFICERS AND COMMITTEES, 1911

President—Dr. C. M. Van Poole.....Salisbury
Fist Vice-President—Dr. J. V. McGougan.....Fayetteville
Second Vice-President—Dr. W. E. Warren.....Williamston
Third Vice-President—Dr. L. N. Glenn.....Gastonia
Secretary—Dr. D. A. Stanton.....High Point
Treasurer—Dr. H. D. Walker.....Elizabeth City
Orator—Dr. J. M. Templeton.....Cary
Essayist—Dr. S. A. Stevens.....Monroe
Leader of Debate—Dr. John McCampbell.....Morganton

COUNCILORS

First District—Dr. J. L. Spruill, Columbia.
Second District—Dr. K. P. B. Bonner, Morehead City.
Third District—Dr. G. L. Sikes, Salemburg.
Fourth District—Dr. M. M. Saliba, Wilson.
Fifth District—Dr. W. P. Holt, Duke.
Sixth District—Dr. R. L. Felts, Durham.
Seventh District—Dr. A. J. Crowell, Charlotte.
Eigth District—Dr. R. O. Dees, Greensboro.
Ninth District—Dr. D. J. Hill, Lexington.
Tenth District—Dr. M. L. Stevens, Asheville.

MINUTES

TUESDAY, JUNE 20th.

Association called to order by Dr. E. C. Register, Chairman Committee of Arrangements.

DR. REGISTER: Dr. Rowe will now lead us in prayer.

Invocation.

Rev. Dr. G. T. Rowe.

Almighty God, we come together this morning realizing that all reality and all power are in Thee; conscious of the fact that every good thing that our humanity has ever attained has either directly or indirectly come from Thee.

We, therefore, thank Thee because of all that Thou hast made it possible for us to accomplish for ourselves, for each other, for humanity. As Thou hast placed before us the great realm of knowledge—that knowledge of Thyself and of each individual person, and of all the facts of nature and the world —we thank Thee for those means which Thou hast given us by which we may know Thee as our Father, by which we may enter into the filial consciousness and realize our sonship to Thee.

We thank Thee also for that power of self introspection, by which we may look back into self consciousness and realize what each one of us is, and also for that power of observation by which we look outward into the vast world of fact, and learn the things that are before us to be learned, in order that we may work with them to accomplish the purposes that Thou hast set us to accomplish.

We thank Thee especially for the great progress that the medical profession has made, as during ages they have studied the phenomena of disease and sanitation; for the power that Thou hast developed through this study in overcoming superstition and dirt and disease and filth and sin. We thank Thee also for that spirit of fellowship and co-operation that in Jesus Christ has arisen in the world for the mastery of the forces of the world, for while each is interested in himself and in his own field of work, these men come together today to divide their knowledge among themselves, that each may receive the benefit from the other and that all of society may receive the benefit from all.

We pray for that sense of reality that should characterize all earnest men, as they are co-workers with Thee for overcoming the obstacles of our human life, and for the development of every resource of good and power which Thou hast placed in our hand.

Do Thou guide the deliberations of this Association during this week, may every man return to his place of labor with a higher sense of responsibility and of privilege than he has ever had before, and may the time be hastenend in our great commonwealth when infection and disease shall be conquered, and we shall learn to live as sons and daughters of the living God ought to live.

These blessings we ask in the name of Jesus Christ, the great eternal Physician of men—Amen.

Dr. Register: Ladies and gentlemen, it gives me great pleasure to introduce our popular Mayor, Dr. C. A. Bland, who will deliver the address of welcome on the part of the City. (Applause.)

Address of Welcome on Behalf of the City.

Dr. Charles A. Bland, Mayor.

In Bryant Park, New York City, stands a bronze statute of Dr. James Marion Sims, the great physician and surgeon, born in Lancaster County, South Carolina, and "who passed to silent and pathetic dust in the metropolis of America." This testimonial of appreciation of the achievements of an eminent member of the medical profession suggested the thought to my mind how few monuments have been raised to commemorate the benefit wrought humanity by the unremitting work of physicians. "On their tombs there is no proclaiming statute to repeat to posterity the mysteries which genius seeks at his own cost."

Balzac, in his novel, "The Country Doctor," draws a beautiful picture of the good accomplished by conscientious physicians. I can recall men in this community whose memories will conjure up thoughts of uncomplaining devotion to duty. Through storm and sunshine, night and day, the winter's cold and the summer's heat, they responded to the calls of the sick and distressed. The physician is not infrequently the confidential adviser of his patients. Shakespeare, as Macbeth, exclaims to the Court Doctor: "Canst thou not minister to the mind diseased; pluck from the memory a rooted sorrow ?"

This shows that from time immemorial the doctor has been called upon not only to ease bodily suffering, but mental anguish as well.

On me has been conferred the honor and pleasure of extending to the North Carolina Medical Society a cordial welcome to this city? May your short respite from cares and anxieties of practice bring you pleasure and profit, and may the work of this scientific body for the advancement of the medical profession and the betterment of humanity be crowned with success.

I will not give you the keys of the city, for we have taken the gates off the hinges. The city is yours to command. (Applause).

Dr. Register: The next speaker, ladies and gentlemen, is Doctor J. P. Munroe, who will deliver the address of welcome on behalf of the Mecklenburg County Medical Society. (Applause).

Address of Welcome on Behalf of the Mecklenburg County Medical Society.

DR. J. P. MUNROE.

As you all know the gentleman whom I have the honor to follow was for a number of years engaged in that branch of the healing art known as Dentistry and he pulled the people of this community with such marked success, that while yet in the prime of life, he was able to retire from active practice. But he had gained such a hold on the affections of our citizens that they were unwilling to let him stay in retirement and recently they elected him to the highest place of honor within the gift of the people. This makes him the logical representative of the city in welcoming any distinguished body of visitors to our midst.

We are fortunate in having as the chief speaker at these opening exercises one who has had professional training and extensive practice in a line of work so closely akin to ours, and I am honored in being allowed to follow so talented a speaker, to second his sentiments rather than to add materially to them.

The relative position of Dr. Bland and myself may be illustrated by a little incident that is told of two brothers who live together on a prominent street of this city. One is a Doctor of Divinity, the other a Doctor of Medicine. A countryman in search of the Divine called one day and knocked at the physician's door, "Does Dr. Rowe live here," he asked. "Yes Sir." "Can I see him?" "Yes, I am Dr. Rowe." "Who, you?" "Yes, Sir." "You must have altered considerably since I heard you preach." "Heard me preach?" Certainly you are the Dr. Rowe that preached up here at the corner, ain't you?" "Oh, I see now you are mistaken, you are looking for my brother who preaches, I am the doctor who practices."

So it was arranged for Dr. Bland to do the speaking and me the handshaking.

We would have you relax your tired bodies, lay aside for awhile the cares, duties and responsibilities of your every-day life, turn your minds loose in the green pastures of good fellowship, ride over our good roads, rest under the shade of our trees and basque in the smiles of our beautiful women. Laugh and grow fat, eat, drink and be merry. Our city a short time since was suffering from a limited supply of water and it is rumored that in order to provide against any possible contingencies along this line the committee of arrangements ordered something to meet the demands of the thirsty this week. It is only the truth to say that some good folks with inconvenient memories experienced a little shudder of apprehension when this became known. The reason for this apprehension I need not discuss and I am not informed as to the exact plans of the committee. That they will be equal to the occasion you may rest assured. I am reminded here of an incident that is said to have occurred in the mountains of Kentucky. The Dutch of modern times are said to be too reflective, ultra conservative and perhaps over cautious. The followers of John Wesley on the other hand are regarded as emotional, progressive and impulsive. In the mountains of Kentucky a protracted meeting had culminated in a love feast. A man arose, and said he, "Brethren, never in my life was I in such a jubilant frame as I am now. I feel as if I were on board of the old ship Zion." This was the Scriptural figure. They sang a hymn and another man arose. Said he, "I feel that I am on board the old ship Zion, and I am happy to say that the captain of our salvation is on board." This too was a Scriptural figure, and they sang again, and a third man got up in a tremendous state of excitement, and said he: "I say to you that I am on board the old ship Zion, and the captain is on board, and I feel as if I had a fair wind for the New Jerusalem." And that was not very much out of the way, and

they sang another hymn. By this time they were at fever heat, and another man sprang up and said: "My brethren, I am on board the old ship Zion and the captain is on board." "We have got a tremendous wind for the New Jerusalem, but this is an age of improvements, and I feel that we have got steam on board and we can go on no matter how boisterous the waves are." And as soon as he sat down, sister Van Antwerp, a Dutch woman from back in the mountains rose and said she: "Brethren, I am glad that I am on board the old ship Zion, and I am glad the Captain of our salvation is on board, and I am glad we have a fair wind for the New Jerusalem, But about this here steam, I don't know—I hope you won't any of you bust your bilers, brethren."

Oliver Wendell Holmes has said that every person's feelings have a front door and a side door by which they may be entered. The front door leads into a vestibule which opens into an ante-room and this into the interior apartment. The side door opens at once into the sacred chambers. So with a community, so with a city. Our front door has been thrown wide open to receive you, you have been ushered through the vestibule into the ante-room and our mayor has extended you a formal welcome and turned over to you the keys of the city. Right glad I am, Mr. President and fellow members, for myself and our society, standing by the mayor's side to grasp you by the hand and tell you we feel honored in having in our city such a body of men as that which faces me this morning. Look where I may, to any part of this assembly hall and I see faces of those who are men of prominence and commanding influence in their respective communities at home. Go where you will to any city, town or hamlet in the state and you will see verification of this statement. This is especially noticeable in the country districts where the good old family doctor is still found in all his pristine glory, and where he is enshrined in the affections of the people whom he serves. It is an honor to have with us men who are individually, such

as I have indicated, but it is even a greater honor to this city, it would be an honor to any city, to have as its guests the official representatives of so great a profession as that to which you belong.

In order that we may consider becomingly the attributes of this profession it is my special privilege to open the side door that leads directly into the sacred apartment. We ask you to come in that we may see you face to face and talk to you heart to heart.

That we may acquire a better idea of its dignities and its place in the world, let us stand aside a little space and endeavor to get a panoramic view of the profession as a whole, its past, its present, its future, the shadows as they appear, the lights as they flicker, the sunshine as it dazzles.

The first thing I see is an ancient and honorable ancestry. Scientific medicine was born five centuries before the Christian Era. Greece was the fostering mother. Hippocrates furnished the Philosophic mind that moulded it and stamped upon it their characteristic features that have carried it through the storms and vicissitudes of the ages.

The high moral ideals expressed in that most memorable of human documents, the "Hippocratic oath," contains the essentials of the golden rules of New Testament times and constitute the basis of the "Principles of Medicine and Ethics" of this society.

Follow it through the ages up to the present time, and although there are times when its sun almost sank beneath the horizon, yet there were always some to maintain those high Greek ideals and to extend the apostolic succession, linking together the members of a true Brotherhood.

A second feature we notice is the unity of this Brotherhood. Unity of ambition to wrest from nature the secret stores of knowledge that tell us of the causes of disease and the means of their cure. Unity of purpose to appropriate this knowledge to prevent disease, relieve suffering and heal the sick.

Again I see a profession that is *progressive* as well as conservative. Consider for a moment the other learned professions.

The Lawyer and Jurist look backward for precedent on which to base to-day's decisions.

The minister's work is based on principles and creeds that are essentially the same from age to age and no profane hand may alter or add to what has been revealed.

But the Physician regards precedent as valuable only so long as new facts and new experiments do not show a better way. While the moral and ethical standards must ever remain the same, the medical mind is always open to receive further knowledge and alert to discover new truths.

And again I see a profession rich in its *beneficient results, especially* during the last century. Another has truly said that you may "search the scriptures of human achievements and you cannot find anything to equal in beneficience the introduction of Anesthesia, Asepsis and Sanitation with all that it includes."

The work of Walter Reed and his associates has well nigh driven from the world that one time scourge of the Southland, Yellow Fever. The equally brilliant work of Laveran and his followers has made waste places of the earth habitable and the wilderness to blossom like the rose.

Diseases familiar to our fathers and grand-fathers are fast disappearing from the face of the earth, and modern medical measures have alleviated the pains, lessoned the sorrows and lengthened the lives of millions.

And the end is not yet. Discovery after discovery follows each other so fast that we know not what to expect next. Truly may it be said of this, as of no other age, "The leaves of the tree of science are for the healing of the nations."

This is the profession of which you are a component part, this is the work in which you are engaged.

Again I see as a conspicuous feature of the medical profession Charity—, that charity which vaunteth not itself, and is not puffed up, that charity which is kind and covereth a multitude of sins. Over every highway, road and path, whether trodden by the humble country doctor or the most learned of the land, is written the word Charity. Yes, even on the breast of every worthy physician it is engraved, and by this token he gains entrance into sacred recesses where angels fear to tread.

I bow with reverential deference to those who are members of the sacred profession of the ministry, who devote their lives to the good of others.

But even they are not admitted into the innermost lives of the people to the extent that the Physician is.

To the Physician is laid bare the body with its infirmities, as well as its vigor, the soul with its vices as well as its virtues, the heart with its sorrows as well as its joys, the mind with its disappointments as well as its hopes.

To him as to no other is lifted the veil that discloses the thoughts and passions that make life bitter or sweet.

To no other is given the same power to mould the character, guide the destiny and mark the way that leads to peace and happiness.

Thrice honored are we of this City and County in being permitted to welcome the men before me this morning, the Society you compose, the Profession you adorn.

Dr. Register: These addresses of welcome will be responded to by Dr. E. G. Moore, of Elm City.

Response to Address of Welcome.

In Behalf of the Medical Society of North Carolina, Charlotte, 1911.

Dr. E. G. Moore, Elm City.

Mr. Chairman, Ladies and Gentlemen:

I feel the consciousness of a personal unworthiness of the distinction which has been accorded me as representative and spokesman for this Association of North Carolina doctors. I assume the role under protest, meekly submissive to an enforced obedience to that Scriptural injunction, which commands us, "Bear ye one another's burdens."

I can formulate no words which will fitly convey my personal emotions, or express the sentiments and the pleasure of this Society at the cordial reception which you have tendered us, and the generous words of welcome with which you have greeted us. We esteem it an honor to be the guests of this City and this people; whose heroic mould, whose dauntless courage and whose matchless energy, pre-eminent and conspicious in every department of your historic and industrial life, cannot fail to impart a gleam of inspiration to any convention, even though it be a plain and unsophisticated congregation of medical men. I see that it is no mean thing to be a Charlotte-tonian doctor, nor is it a dangerous experiment to be a visiting doctor in Charlotte, since you have permitted one of your own to speak in public, and by special invitation have commissioned you Chief Executive to appear before us. Now if we could make safe with his Executive clemency, or by some lucky star could hoodoo your police, we would feel entirely safe. Perhaps I speak without authority, but I am inclined to tell the truth, that we are not mendicants, but we are human, and should our wandering feet press near where

danger lies, or by some awkward speech we trip, and thereby make a blunder, or if mortal disposition be guiled by importuning friends to scent the aroma of luscious grapes distilled, and thereby hangs a tale—it may be joy, but can be woe; deal with us gently Sir, as your brother man, for we are a little short of cash, and a long way from home.

But to-day the true North Carolina spirit prevails, and you have gathered here representatives of the Medical profession from every portion of our Commonwealth; from cragged mountain peak to Ocean's pebbled shore, from "Old Dominion's" favored kiss to "Palmetto's" gladsome sunny smile, bidden by your courteous invitation, and welcomed by your generous hospitality to dwell with you in peace and unity for a season. We wish to assure you that we have left our battering-ram, our battle-axe, our personal vendettas, and bad tempers at home; and whatever of good there is in us, we tender through this convention as a pious offering to Charlotte, and whatever of virtue and of beauty, or of courage and of character that we may behold in you, the memory of it we shall take back with us to enrich and to en-noble our faith and our hope. This is not the occasion, nor is it my mission, to review with measured sentence the record of your historic past, or with prophetic foresight unfold to you the possibilities or the blessed assurance of greater things yet to be. Lord Cornwallis with a cynical sneer characterized you as a "Hornet's Nest," but since his day you have evoluted into a "Bee hive" of commercial and domestic workers, extracting the hidden secret from plant and flower, and distilling its sweetness in the richness of your industries, and the virtue of your home. To you belongs the distinction of having struck the first blow that wrested from the hand of tyranny and oppression the triumphant victory of liberty and freedom. Your Declaration of Independence is a profound historic fact, a priceless legacy bequeathed unto you, carved out of the rugged spirit, and baptized with the consecration of your heroic fore-fathers. Im-

mortal be their glory, and imperishable be your history that will perpetuate forever the patriotism that inspired and the heorism that dared. But patriotic as your ancestry may have been, and renowned as your history and traditions may be, you have not been content to rest your laurels there. Inspired by faith, imbued with courage, with confidence in man and trust in God, you have moved in your silent might, overcoming every obstacle to progress and development, and given as an object lesson to this generation a City of material wealth and of material worth, a product of the genius of mind and the genius of effort.

If a grateful Nation has made imperishable the fame and immortal the glory of Thomas Jefferson, should not Mecklenburg and North Carolina, as a supreme test of an earnest and faithful devotion preserve unsullied the memory and, with a wealth of monumental esteem, proclaim to the world and transmit to posterity the civic grandeur and greatness of Dr. Ephriam Brevard and the other patriotic signers of the Mecklenburg Declaration?

As a loving mother would entwine her arms about her tender child and press it fondly to her heart, so North Carolina, with glad affection and open arms embraces in loving caress her queenly daughter, the pride of Mecklenburg, Our Charlotte.

I heard a voice from the mountain top, and it swept with the winds over the plains and it ran with the waters to the sea, it waved with the foliage of drunken forest, and it warbled with the song of birds, it kissed the blushing tints of perfumed flowers, and wafted its odorous breath in gentle breeze and balmy air; gleeful children, listening, caught its accents, and men and women above the hum of machinery, and sound of music, heard the message of the voice as it proclaimed, "Watch Charlotte Grow." It matters not whether at noonday or at mid-night, in summer's heat or winter's chill, amid

the busy throng of your crowded streets, or along your broad highways of macadam thoroughfare that binds the ties and cements the common interests of urban and rural life alike, will be found testimonials of new life and evidences that the growing process still continues. Can lawyer or doctor, minister or merchant, banker or manufacturer, or business man of any kind claim for his responsibility these results; and is it not your virile and devout citizenship working harmoniously together for the moral and physical uplift of the community that has brought these things to pass?

I intend it as a compliment to the local profession as well as to the laymen when I congratulate you that relatively speaking you have so few doctors, and collectively speaking you have so many good doctors. That you do not regard them with any special disfavor is shown by the fact, that you grant them the rights of a favored citizenship, and tax yourselves for their support. You have helped them to found a college, and aided them to erect a hospital, and you have furnished ninety-nine per cent. of all the raw material out of which they build their success, and from which they carve their monuments. But there has been no period in your history when the doctor has not been a recognized factor in your progress, and in a large measure has contributed to those agencies and influences which have made your existence a living possibility. He has taught you the valuable lessons of preventive medicine, and instructed you in the doctrine and principles of a better sanitation, whereby municipalities, as well as individuals, may develop a stronger and more wholesome life. He has taught you that the conservation of health brings wealth, not necessarily the wealth of sordid gold, but the wealth of happiness in the joy of right living. He has urged, and still urges the State and the individual to a higher sense of duty in defending and protecting against preventable diseases, and preventable deaths; and thus he serves, as only he can serve, as a public benefactor for the public good.

The true and faithful doctor toils and suffers and hopes that others may live, and humanity may be blessed through his service and his labors. His renown comes from the pen of no fulsome historian, his reward from the hand of no Lordly King, and his gatitude from the appreciation of no applauding multitude; but for him the victor's crown comes from the hand of the Immortal God, his reward from the consciousness of doing a great and noble service, and his renown from the gratitude of his fellow man.

Medicine is a benign and progressive science, and great as has been its accomplishments in the past, its scientific advancement assures us of still greater possibilities for the future. Tireless workers after scientific truth are winnowing the chaff from the grain, and every day we are passing new mile-stones that point the way to some discovery for the alleviation of human suffering and the prevention of human death. From the darkness of the unknown we are entering the breaking light of a new dawn, and a new day, whose rising sun will shed the genial warmth of a better knowledge, and whose splendor of noon-day will be the glorious conquest of sanitary science and preventive medicine.

If humanity is to be redeemed from the curse of disease, then the campaign must be world-wide and universal, with every enlisted worker armed with the sword of defense and bearing aloft the one flag whose inscription shall be "Preventive Medicine."

A thousand things we have learned, and ten thousand more are yet to be, and still we know we are born to die; the common lot, the destiny, the fate of all, when human power, and human knowledge, and human skill availeth not and the curtain drops, we know not why. But:

Some time when all life's lessons have been learned,
And sun and stars forevermore have set,
The things which our weak judgments here have spurned,
The things o'er which we grieved with lashes wet,

Will flash before us our life's dark night,
As stars shine most in deeper tints of blue,
And we shall see how all God's plans are right,
And how what seemed reproof was love most true.

And if through patient toil we reach the land
Where tired feet with sandals loosed may rest,
When we shall clearly know and understand,
I think that we will say, "God knew the best."

In behalf of The Medical Society of North Carolina I thank you.

Dr. Register: *Ladies and Gentlemen*: It gives me great pleasure to introduce to you our President, Dr. C. M. Van Poole. (Applause.)

President's Address.

THE IMPORTANCE OF THOROUGH LITERARY AND GENERAL SCIENTIFIC TRAINING PRIOR TO ENTERING THE MEDICAL PROFESSION, AND THE MAINTENANCE OF HIGH IDEALS AFTER ENTERING THE SAME—SOME REMARKS AS TO THE WORK AND NEEDS OF THE SOCIETY.

C. M. Van Poole, M.D., Salisbury.

Fellow Members:

Difficult, indeed, is the task when I attempt to find words fittingly appreciative of the distinguished honor you have conferred upon me by making me President of your honorable body. In accepting the honor thus bestowed I am doubly mindful of the fact that with the honor goes also a tremendous responsibility and an immense amount of labor. To view the former without the latter would arouse feelings of gratitude which a tongue inspired with human thought alone could have no power to express.

We are assembled in the fifty-eighth annual meeting of this society—an age that should command the highest respect for its years, and that should carry with it that maturity of thought and action which should impress every one with its character and dignity. The honors, responsibilities and privileges of this body, as well as its dignity and progressiveness, should multiply with its added years and should be shared in by the whole profession of the State.

To-day we are the honored guests of a people unexcelled for their patriotism and culture, whose openhanded hospitality is equalled only by the hearty appreciation of its guests. Our pleasure at this meeting, however, is saddened by the absence of the smile of welcome and warm grasp of the hand of our

former fellow member and leader, the late Dr. Joseph Graham. How we shall miss him at this meeting. He was a big-hearted man, a man of even temperament, loyal to duty, true to his friends, and of a forgiving spirit to those who chose to differ with him. His place in the work of this society will be hard to fill. All honor to his name, and peace to his ashes.

Meeting, as we are, in this highly favored commercial center, with its genial climate, hospitable homes and courtly people, I feel assured all come with one common purpose, namely, the advancement of science, the upholding of the honor and dignity of our noble art, and the promotion of the good of our fellow man.

For thirty-one consecutive meetings I have listened to my distinguished predecessors as they, in turn, have delivered their respective addresses on various subjects. The ground has been pretty well covered, and yet, as I survey the field of past and present, and compare the needs of by-gone days with the actual necessities of the present and near future, one subject seems to stand out high above all others, namely, that of thorough qualification along the line of literary and general scientific training prior to entering the medical profession, and the maintenance of high ideals after becoming a member of the same. This is a subject of vast interest to the medical profession and equally so to the people as a whole. As to the laws governing this matter we have some, they might and should be better, but be this as it may, we must strive to maintain that high standard in the profession to which we are entitled and at the same time protect the people against incompetent and unworthy practitioners. It only remains for the loyal, prudent and conservative members of the profession, aided by an enlightened, intelligent and humane citizenship, unbiased by extraneous or fortuitous circumstances, to see to it that the laws we have are enforced in the fullness of the letter and spirit, ever holding the scales of justice evenly poised that its good name be in no wise stigmatized, and we confidently pre-

dict that the time is not far distant when this will be done, and the high standard of medical education in North Carolina will be the pride and boast of an enlightened and appreciative citizenship.

The ultimate aim of all medical research is the prevention and treatment of disease. Medical science deals with objects of a high order, and gives laws to an art that concerns one common humanity. It seeks to solve the mysteries of the phenomena of life, and to this end investigates the remarkable chemistry of the human organism, pries into the cunning woof of animal textures, and tries to gain an insight into the variety and complexity of vital apparatus and their normal operations.

From the information thus acquired, medical science extends its researches into the changes of anatomical structures, the character and order of deranged functions, and the significance of symptoms, which express morbid conditions. To become acquainted with the results of such manifold and complicated investigations, and to learn how to utilize them in an enlightened and conscientious manner, for the relief of suffering and the restoration of health, requires a great deal of patience, aptitude and time. In order that we may become proficient the mind must dip down deep into the sciences of the world. They do not come to us spontaneously nor without effort on our part, for, it is well known that any department of human knowledge consists of a body of facts, doctrines and propositions, which are obtained by that course of reasoning which proceeds from the known to the unknown, from the evident to the obscure, and from the simple to the complex. The powers of the mind, which are called into requisition to this end, do not differ from those which are employed in the ordinary transactions of life; but the difficulty of obtaining accurate observations increases in proportion to their variety and complexity. To disentangle the involved web of occurrences, to specialize with exactness the conditions that determine and regulate them,

baffle the common ways of investigation, and require improved methods.

How important, then, it is that, before entering upon the study of medicine there should be a competent literary education, for, the scientific mind encounters an infinitude of problems of which the uncultivated has no conception. To ascertain principles that underlie apparently disconnected facts calls for patient and laborious research; constancy and perseverance in tentative efforts, a mind fruitful of suggestions, and a natural disposition to find pleasure in the pursuit of knowledge for its own sake. How inadequately the unscientific man is furnished to arrive at rational explanations of phenomena beyond the limited sphere of his experience, or which occassionally excite his wonder and curiosity is amply demonstrated by the prevalence of popular errors and the crude and fanciful notions in relation to natural events. Coincidences are mistaken for uniformities, occult causes are conjured up to shed light upon strange occurrences, a plausible guess stands for proof, and one happy hit overbalances a hundred failures. But, how different this whole matter appears to the educated man! He has a nucleus around which his future experiences and researches may accumulate, but, in order to profit by his experience, he must employ the same methods that led to the acquisition of the knowledge he has previously appropriated to himself; and this is the more necessary as he will constantly be thrown upon his own resources in his future life. He will then fully appreciate the value of science which confers the power of applying to one object the knowledge acquired from another. Having already mastered a large number of facts, their remote connections and interdependence, he is prepared to apply the principle of inductive reasoning wherever it is possible. In proportion as he has habituated himself to reflect on the agreement or identity of facts that come under his observation, and in proportion to the acuteness he has acquired to discover resemblances and to suggest explanations, in the same

proportion obscurities will clear up, and enable him to work out a rational course of therapeutics.

Having thus prepared himself to absorb and assimilate scientific problems, the young man should be very careful in the selection of the medical school from which he expects to graduate. In justice to the student, therefore, it is but fair to say that no medical college offering the degree of doctor of medicine should be satisfied without the very best equipment and a superior teaching force. The day has passed when superficial teaching and a mere smattering of medical knowledge was sufficient. The licentiate should not only have a competency of theory and book knowledge but his laboratory and hospital training should be such as to make him, at least, the peer of his brother practitioner with whom he is to compete. He should also possess a competent knowledge of human nature, for, it is evident, that the relation of the physician to the public is rapidly changing and that the former must prepare himself for the continually increasing responsibilities which are certain to be placed upon his shoulders. He will be expected, shortly, to be as proficient in the art of prevention as in that of healing. He will be called upon to be the medical advisor, not only of individuals, but of communities and governments. There will be a demand for him to fill great positions of trust. As an investigator and teacher he will mould and reform public opinion. It is, indeed, a great career that is opening up for the medical man, but one that will demand sacrifice and service both personal and public. But as the profession is ennobled and greater demands are made upon it by the public, so will men of greater and greater calibre be induced to enter its ranks. In fact, the medical profession deserves to stand in the very front rank of citizenship, and, with the modern methods of teaching, the common desire and concerted effort to raise the standard of medical education, great things may be expected. It is a well known fact that during the last two decades the United States has

been the scene of such intense revolutions in the domain of medical education as have never before been seen in the history of medical science in this or any other country. The accomplishment of modified plans for medical study, the co-operation of medical colleges and universities, the raising of the standard of primary education, the management of financial and administrative questions, the relations of educational institutes to hospitals, etc., etc., have created exceedingly important problems. At the present time we are experiencing an evolution in medical education, in which not only students and physicians are interested, but also the administrators of communities—in fact the people of the entire country. It is the opinion of some that the training of capable and reliable physicians should not be relegated to individual institutes, but treated as a subject of national concern. In the United States the interest has, in the main, been focussed upon undergraduate education, while in the old world the conditions are totally different. Medical education and training there has always been regarded as the responsible task of universities and governments, and in the course of its systematic development has attained to its present commanding height. There is no doubt that on the other side of the Atlantic constant interest has been evinced in favor of improving medical undergraduate education, but in the absence of urgent problems in this direction the interest of the medical world has, in recent times, veered towards post-graduate education. However, if the teaching and training of the colleges and universities of America is thorough, and if the requirements of examining boards are such as to force applicants to possess a competent knowledge before they are allowed to enter upon its practice, then there is no good reason why the standard of medicine in the United States should not equal that of any other country.

There should be a single portal to the practice of medicine—thorough qualification. Individuals who are to treat human ailments are alike in many respects. In the first place they must

make diagnoses in order to recognize what they are endeavoring to treat, and, secondly, what they may fail to do in certain cases, even as much possibly as the things they do, may mean the life or the death of the patient. For these reasons everyone who is to treat human ills, regardless of the particular methods employed, should be required to have a thorough training in the fundamental branches of medicine.

The objection to medical sects, therefore, is not so much because they are sects as it is that their followers enter the medical profession with a smaller amount of preliminary and medical training than do regular physicians.

If the standard is to be high, let the requirement apply to all alike.

And now, fellow members, a word as to the work of the past year and the actual needs of the present.

Among the many scientific investigations of to-day nothing seems to surpass that of hookworm disease. It is a well recognized fact throughout this Nation that the greatest campaign that has ever been inaugurated against the hookworm in any country is now being carried on in North Carolina under the efficient leadership of our Dr. John A. Ferrell. We congratulate him upon his unprecedented success and at the same time wish to commend the physicians of the State who have so nobly assisted him. If the present rate of prevention and eradication is continued many precious lives will be saved to the State.

The anti-tuberculosis work in the State is commendable and has already done a great deal of good, but, this line of scientific investigation has, to a great extent, been handicapped on account of the lack of interest and co-operation of the vast majority of the members of the profession. The laity, however, as is the case in the hookworm campaign, is being educated and brought to a knowledge of the fact that as much or more can be done along the line of preventive measures as that of cure. In most cases, when this matter is brought

forcibly to bear upon them, there is hearty co-operation. This should be an incentive to the profession to do greater work in this respect. The medical profession in North Carolina is not inferior to that of any other State, but the progressive spirit of prevention has not yet thoroughly been grasped and utilized by a large per cent. of the profession. A brief reference to statistics bearing upon this matter might serve to stimulate the members of this body to greater action.

We gather from the reports of the National Association for the study and prevention of Tuberculosis that over 600 cities and towns in the United States are engaged in the war against consumption, and that there are over 1,500 agencies at work in this crusade. This shows an increase of about 700 per cent. in the last seven years. There are 421 tuberculosis sanatoria, hospitals and camps; 511 associations and committees for the prevention of tuberculosis; 342 special dispensaries; 68 open air schools; 98 hospitals for the insane have made special provision for their tuberculosis inmates. Practically all of this within the last seven years.

With such rapid recruiting of the fighting force, who can lose heart as to the outcome of the great battle?

The State board of health is revolutionizing sanitary matters in North Carolina. While we did not get all that we asked for yet we are bound to acknowledge that the work of the State Legislature along this line was commendable. With the appropriation more than doubled, with better sanitary regulations for the counties and with more power vested in those entrusted with this work, public health and sanitary conditions in general will certainly be improved.

We are living in a progressive age, and the time has come when this society should provide a suitable badge or button of recognition for its members. I therefore recommend that the society provide a suitable pin, badge or button. It need not and should not be large nor very expensive, but something neat that could be worn the year round. On it should be

placed a monogram or initials, such as might be agreed upon by a proper committee.

It would be well, also, for this society to take the initiative looking to the care and maintenance of the aged, deserving indigent members of the profession of the State. This would only be demonstrating to the world the well known fact that medical men do more charitable work than any other profession in existence.

The organized work of the profession in North Carolina during the past year has, in some localities, been highly commendable, while in others the opposite is true. Your president has tried, in vain largely, to create enthusiasm and to revive a progressive spirit, but it seems, in many of the districts, that "Ephriam is joined to his idols and we might as well let him alone." In some counties from which the State society a few years ago, drew its very best membership, there is not even the semblance of an active organization. Today this society numbers about 25 per cent. less members than it did a few years ago. Why this apathy? What is the cause? Where shall the blame rest? This lethargy and inactivity has grown to such magnitude that it is high time the society should take cognizance of it. But in considering this matter there might be several causes worthy of consideration. We should bear in mind the fact that a few years ago, when the new plan of organization was adopted, there was, with a majority of the members, over-enthusiasm and everything ran top-heavy, and, that to-day the membership is, perhaps, only settling back to a normal, healthy, working condition.

Another cause might be assigned, namely: It has been apparent for several years that there is a spirit of unrest permeating the society. Whether there was or is just cause for such unrest is not mine to discuss at this time. However, the conditions are before us and must be met. Just what is the best thing to be done is for you, as a society, to say. The recommendations of my predecessor are in the hands of a com-

petent committee and I believe that whatever they may recommend will be intended for the very best interests of the medical profession of the State as a whole. One thing is apparent; if the society is to live and thrive there must be some provision whereby reputable physicians, resident in counties where there is no active local organization, may become members of the State society. This may be provided for by the special committee, but if not, I recommend that some action be taken looking to this end.

I would urge that, when the report of this committee is finally disposed of, it be done with an eye single to the best interests of the society and the profession in general, void of feeling or friction, and trust that whatever may be done may prove the redemption of the grand old Medical Society of the State of North Carolina.

Dr. Julian: I wish to move that this very valuable address of the President's be referred to a Committee to report on the President's address. Seconded by Dr. Munroe and unanimously carried.

MINUTES

of the

Fifty-Eighth Annual Session of the Medical Society of the State of North Carolina, Held at Charlotte, June 20-22, 1911.

Called to order by Dr. E. C. Register, Chairman of the Committee of Arrangements.

Invocation by Rev. G. T. Rowe.

Address of Welcome by Dr. J. P. Munroe, President North Carolina Medical College, on the part of the Mecklenburg County Medical Society.

Address of Welcome by Dr. Charles A. Bland, Mayor City of Charlotte, on behalf of the City.

Response by Dr. E. G. Moore, Elm City.

President, Dr. C. M. Van Poole, of Salisbury, introduced by Dr. Register.

Papers read at morning session as follows:

"Pelvic Infection," Dr. J. W. Long, Greensboro.

"The Simplified Operation in Gynecology," Dr. E. T. Dickinson, Wilson.

"Cancer of Uterus, Operable and Irremovable," Dr. J. T. Burrus, High Point.

Adjournment until 2:30 P. M.

Tuesday Afternoon.

Dr. Stevens in the chair.

Papers read as follows:

"Ovarian Cysts," Dr. J. Shelton Horsley, Richmond, Va.

Discussed by Doctors Long and Burrus.

"Ten Years Among Fibroids," Dr. C. M. Strong, Charlotte.

Discussed by Doctor Payne, of Norfolk, Va., Dr. Malone and Dr. Horsley.

"Spurious Pregnancy," Dr. J. S. Clifford, Charlotte.

"Some Observations and Conclusions Found During an Experience of Ten Years in Opium and Alcoholic Habitues," Dr. S. M. Crowell, Charlotte.

Discussed by Dr. Taylor.

"The Illegal Practitioner," Dr. N. B. Adams, Murphy.

"Phlebitis of the Femoral Veins Following Surgical Operations in the Pelvis," Dr. R. O. Dees, Greensboro.

President appoints the following Committee on President's Address: Dr. M. H. Fletcher, Dr. E. T. Dickinson, Dr. C. A. Julian.

Adjournment taken until 8:30 P. M.

Tuesday Evening.

Called to order by the President.

Dr. A. W. Knox, of Raleigh, Chairman Obituary Committee, being absent, the obituary report was referred to the Publication Committee.

A case of abscess of the liver presented by Doctors Wm. Allen and W. O. Nisbet, of Charlotte.

Discussed by Doctors Long, Haynes, Strong and Templeton.

Adjournment until 10:00 o'clock Wednesday morning.

Wednesday Morning.

The President in the chair.

Papers read:

"A Study of Mortuary Statistics of N. C., for the Year 1910, and some Remarks as to the Relation of the Doctor to Public Health, as regards Tuberculosis."

Discussed by Dr. Julian.

"Intestinal Tuberculosis," Dr. Samuel C. Gant, New York, N. Y.

Discussed by Doctors Morse and Weaver.

Conjoint Session State Board of Health with N. C. Medical Society.

Election of two new members on Board of Health, to fill expired terms of Doctors Thomas and Anderson. Drs. Anderson and Laughinghouse elected, and Dr. Way elected at a later session President of the State Board of Health.

Reports read:

By Dr. Rankin, Secretary.

Dr. John A. Ferrell, Asst. Sec. to N. C. Board of Health for Hookworm Disease.

Dr. Shore.

Resolutions introduced by Drs. Laughinghouse and McBrayer, adopted.

Papers read:

"The Importance of Mild Cases of Hookworm Disease," Dr. W. B. Page, Raleigh.

"The Effects of Sanitation on Hookworm Infection," Dr. C. L. Pridgen, Raleigh.

Address by Dr. Stiles; also by Col. Ludlow, of Winston.

Col. Ludlow elected honorary member State Medical Society.

Afternoon Session.

Papers read:

"Determination of the Renal Function by Means of Phenosulphonepthalain and its value in the Diagnosis and Prognosis of Kidney Affections," Dr. John T. Geraghty, Baltimore, Md.

Discussed by Doctors Crowell and William Allen.

"Possibilities of Preventive Medicine," Dr. W. J. McAnally, High Point.

"The Duty of the Physician to the County and State Medical Society," Dr. H. D. Walker, Elizabeth City.

Discussed by several.

Adjournment until 8:00 P. M.

Wednesday Evening.

Called to order by the President.

Report on President's Address read.

"Annual Oration—The Silent Influences of the Physician," Dr. J. M. Templeton, Cary.

Annual Essay, Dr. S. A. Stevens, Monroe.

Adjournment until Thursday, 9:30 A. M.

THURSDAY MORNING.

Called to order by the President.

Report State Board of Medical Examiners, read by Dr. Hays.

Report from House of Delegates, read by the Secretary.

Papers read:

"Traits and Taints," Dr. H. D. Stewart, Monroe.

Discussed by Dr. Faison.

"School Hygiene and Sanitation," Dr. Wm. S. Jordan, Fayetteville.

"Inspection of School Children for Defects of the Eye, Ear, Nose and Throat," Dr. W. Perry Reaves, Greensboro.

Above papers discussed by Doctors Russell, Faison and Taylor.

"Typhoid Fever Vaccination," Dr. C. N. Peeler, Charlotte.

"Serum Diagnosis," Dr. J. W. Squires, Charlotte.

Induction of President-elect into office.

The following papers read by title:

"Hysterectomy for Uterine Fibroids," Dr. H. A. Royster, Raleigh.

"Carcinoma of the Breast in Pregnant Women," Dr. Henry F. Long, Statesville.

"Herniotomy in Youth and Old Age," Dr. A. E. Baker, Charleston, S. C.

"Prolapsus Uteri," Dr. C. S. Lawrence, Winston-Salem.

"A Review of Some of the Problems Confronting the Successful Practice of Obstetrics," Dr. S. M. Mann, Moyock.

"Puerperal Eclampsia as Seen and Treated by a Country Practitioner," Dr. W. T. Griggs, Poplar Branch.

"Cæsarean Section," Dr. T. D. Tayloe, Washington.

"The Toxemia of Pregnancy," Dr. J. N. Newbern, Jarvisburg.

"Meddlesome Midwifery," Dr. Jno. L. Spruill, Columbia.

"Placenta Prævia," Dr. C. J. Sawyer, Windsor.

"How Shall we prevent Feeblemindedness," Dr. E. R. Johnston, Vineland, N. J.

"Errors in Diagnosis," Dr. J. C. Wessell, Wilmington.

"Biliary Cirrhosis," Dr. R. B. Hayes, Fayetteville.

"Experimental Arterio Sclerosis," Dr. Wm. De B. MacNider, Chapel Hill.

"Remarks on Recurrence of Tuberculosis," Dr. W. R. Kirk, Hendersonville.

"The Need of Definite Action in the Tuberculosis Campaign in N. C.," Dr. C. A. Julian, Thomasville.

"Hookworm Disease in its Relation to the White and Negro Races," Dr. Strosnider, Raleigh.

"Study of the Results of Treatment of Hookworm Disease," Dr. Hubert Haywood, Raleigh.

"The Significance of Hookworm Disease," Dr. C. S. Grayson, High Point.

"Therapeutic Nihilism," Dr. W. P. Ivey, Lenoir.

"The Pyramidon Treatment of Typhoid Fever," Dr. W. C. Brownson, Asheville.

"Treatment of Gastro-Intestinal Diseases," Dr. C. W. Moseley, Greensboro.

"The National Formulary," Dr. R. L. Felts, Durham.

"The Principles of Diet," Dr. A. W. Calloway, Asheville.

"The Aims and Purposes of the State Board of Medical Examiners," Dr. B. K. Hays, Oxford.

"Thyroid Insufficiency in Children," Dr. P. R. McFayden, Randleman.

"Internal Secretions," Dr. H. B. Weaver, Asheville.

"The Medico-Legal Aspect of the Nellie Cropsey and the Gibbs Cases," Dr. Oscar McMullan, Elizabeth City.

"The Physician a Potent Factor in Upbuilding the Law and Reclaiming the Race," Dr. J. M. Hardy, Washington.

"Microscopy in Medicine," Dr. R. H. Lafferty, Charlotte.

"Perithelioma of the Prostate with a Resume of this Class of Tumors," Dr. Harland Shoemaker, Shelby.

"The use of Antiformin in Examining Serous Pleural Effusions for Bacillus Tuberculosis," Dr. Wm. Allan, Charlotte.

"The Relative Value of the Various Tests for the Diagnosis of Tuberculosis," Dr. C. C. Orr, Asheville.

"What Aid is the Laboratory in Diagnosis?" Dr. John Hill Tucker, Charlotte.

"A typical Scarlet Fever with Report of a Case," Dr. W. H. Anderson, Wilson.

"The Treatment of Ileo-Colitis," Dr. K. P. B. Bonner, Morehead City.

"Tuberculosis in Children," Dr. Paul H. Ringer, Asheville.

"Adenoids," Dr. Joel D. Whitaker, Raleigh.

"Infant Feeding," Dr. K. C. Moore, Wilson.

"Mental and Physical Hygiene in School Children," Dr. P. V. Anderson, Morganton.

"Report of Case of Scarlet Fever with Pseudo Relapse," Dr. C. A. Woodward, Durham.

"Bullous Pellagra," Dr. H. B. Best, Wilson.

"Further Observations as to the Diazo Reaction in Tuberculosis; with Interesting Observations as to Racial Differences in White and Black," Dr. J. R. Williams, Hendersonville.

"Rheumatism, Further Discussion of an old subject," Dr. J. N. Upshur, Richmond, Va.

"Control of the Recent Outbreak of Smallpox in Wilmington," Dr. Joseph Akerman, Wilmington.

"The Removal of Tonsils under General Anesthesia," Dr. Joel Whitaker, Raleigh.

"The Gradual Reduction Method, or the Quick Withdrawal or Hyoscine Method in the Treatment of the Morphine Habit," Dr. W. C. Ashworth, Greensboro.

"Turbinotomy Submucous," Dr. M. M. Saliba, Wilson.

"Quit you like Men," Dr. J. E. Brooks, Aberdeen.

"Submucous Resection of the Nasal Septum," Dr. H. W. Carter, Washington.

"Some Phases of the Tuberculosis Problem," Dr. E. M. Street, Glendon.

"Symptomatology and Diagnosis of Nephritis," Dr. William Jones, High Point.

"Treatment of Verumontanum and Prostatic Utricle," Dr. W. F. Cole, Greensboro.

"Personal Observations Regarding Ether and Its Administration," Dr. C. O. Abernethy, Raleigh.

"The Duty the Doctor Owes to the People on the Subject of Cancer," Dr. W. O. Spencer, Winston-Salem.

"The Reduction of Infant Mortality," Dr. Charles Roberson, Greensboro.

"Some Recent Thought and Methods in Gastro-Intestinal Diseases," Dr. W. O. Nisbet, Charlotte.

"The Prophylactic Age," Dr. J. M. Allhand, Forest City.

"Acute and Chronic Otitis Media," Dr. H. W. McConell.

"Noma, Cancrum Oris," Dr. A. W. Moore, Charlotte.

Chairmen of Sections for 1912.

Gynecology—Dr. L. D. Wharton, Smithfield.

Obstetrics—Dr. J. W. Neal, Monroe.

Materia Medica and Therapeutics—Dr. W. S. Jordon, Fayetteville.

Physiology and Chemistry—Dr. R. H. Lafferty, Charlotte.

Surgery—Jas. M. Parrott, Kinston.

Railway Surgery—Dr. W. C. Bostic, Forest City.

Practice of Medicine—Dr. W. A. McPhail, Lumberton.

State Medicine and Medical Jurisprudence—Dr. W. S. Rankin, Raleigh.

Diseases of Children—Dr. P. H. Ringer, Asheville.

Pathology and Microscopy—Dr. W. DeB. MacNider, Chapel Hill.

Dr. J. W. Long: *Mr. President*: In view of the fact that two or three distinguished visitors from other States are present with us, I move that they be accorded the privileges of the floor in every respect.

Motion carried.

Dr. Burrus: I move that each paper have its own discussion, as soon as it is read.

Motion carried.

PELVIC INFECTIONS AND THEIR RELATION TO INFLAMMATORY DISEASES OF THE PELVIC STRUCTURES.

JOHN WESLEY LONG, M.D., GREENSBORO.

Just twenty years ago I was Chairman of the Section of Gynecology for this Society. I deemed it an honor then, I consider it even more so in this good year of 1911.

During these intervening two decades much has been accomplished in the way of increased knowledge touching the diseases peculiar to women. The most excellent papers you will have the pleasure of hearing read by my co-laborers under this section will convince you that remarkable strides have been made in the operative work of this department of surgery.

This paper will be limited to a brief consideration of pelvic infections and their relation to the inflammatory diseases of the pelvic structures as well as the management of the same.

The distinction between pelvic and abdominal inflammation is somewhat arbitrary, since an infection in one of these cavities readily invades the other; the process in each becoming part and parcel of the whole. For instance, an acute attack of so-called pus tubes involving as it always does, the pelvic peritoneum, may quickly pass to the abdominal portion of the peritoneum; while, per contra, an appendicitis often causes the pelvis to fill with pus. While, the pelvic organs in the female are so often the starting point of abdominal infections, yet pelvic infections take on so many characteristics peculiar to themselves that it is permissible to consider them in a separate group.

Eighteen years ago when I began teaching gynecology, much was said in the text books and journals about pelvic inflammation, and many a hot controversy was held over the question, as to whether we had to deal with a pelvic peritonitis or a

pelvic cellulitis. It is true, the specific cause of the most usual of the pelvic inflammations had been discovered at that time, by Neiser and other investigators, but the real significance of the infections had hardly taken a deep hold upon the medical mind, and physicians still preferred to stress the anatomical phase of the disease rather than the nature of the infection.

It occurs to me that the better way to discuss the several infections common to the pelvic region, especially before an audience composed largely of general practitioners, is to make a clinical classification, mentioning the infectious agents incident to each class, under their respective heads. Let me disavow any purpose to go into a scientific discussion of the bacteriology of this subject, but rather to give a composite picture of certain diseases, emphasizing the infectious nature of each component part.

A very large proportion of the pelvic diseases peculiar to women come from infection either per vaginum or per abdominum. Clinically, pelvic infections may be roughly grouped as those due to gonorrhoea, the puerperium, appendicitis, new growths, extra-uterine pregnancy, tuberculosis, and trauma.

Considered in the inverse order of their frequency we will notice first: *Trauma,* as a source of infection:

The general diffusion of surgical knowledge, the improvement in technic and greater efficiency in mechanical skill, happily limit to only occasional cases pelvic infection due to trauma at the hands of the physician; but I have had to do hysterectomy in no less than three cases, two of them within the year, for perforation of the uterus with some blunt instrument, in one instance, a coil of intestines had been pulled down into the vagina. Perforation of the uterus does not constitute an infection *per se,* but it opens the gate so wide for the entrance of pathogenic bacteria that the presence of one presupposes the almost certain development of the other.

Whether the trauma be accidental from whatever cause, or

deliberately done by the surgeon, the stereptococci that always lurk in the vagina are ever on the alert to gain access to the traumatized tissues. In this connection should be mentioned active lighting up of infection already present at the time of operation which combination of infection and trauma, for every operation is a trauma, accounts for most of our mortality following pelvic operations. The introduction of new infectious agents while operating on clean cases can usually be avoided by a careful technic but the possibility of doing so must ever be borne in mind. In both instances the trauma plays an important part and I fear has hardly been properly appreciated. Note, for example, the difference between the mortality following operation for pus tubes in the acute and chronic stages; the trauma, in the first instance liberating the bacteria and toxins which otherwise would have been held in leash by the pelvic tissues. In the chronic stage the same amount of trauma produces very little disturbance because the toxicity of the primary infection has disappeared.

Tuberculous Infection: Tuberculosis of the pelvic organs occurs with surprising frequency. Sometimes the bacilli attack the uterus first, then the Fallopian tubes and peritoneum in turn; but usually the bacteria drop down from the abdomen, having penetrated the intestinal wall. Tuberculous infection of the tubes is the starting point for general abdominal tuberculous peritonitis in a large percentage of cases, in fact, stands next to the appendix as the infected nidus.

The tubes offer ideal conditions for the development of the tubercle bacilli, which in turn incite the secretion of a blood tinged serum. Operating for this trouble the surgeon finds the tubes floating in a pelvis half full of bloody serum. Simple drainage often cures these cases by allowing the tubes to collapse and become sealed by adhesions to the pelvic floor; but, the safer plan is to remove the tubes. I have a record of a dozen or more of these cases with perfect cure in every instance.

Infection Complicating Ectopic Pregnancy: A ruptured ectopic pregnancy is occasionally complicated by infection. Fortunately all cases do not become infected. I recall one case of four weeks standing in which the effused blood had formed a clot of such size as to constitute a large abdominal mass or pseudo-tumor, but on operating there was not the slightest evidence of peritonitis. On the other hand in an experience of forty-three cases I have seen several that were badly infected; for instance, one in which the products of conception were lying in a puddle of pus, and another of the interstitial variety, in which the impregnated cornua of uterus had literally broken off like the rotten limb of a tree. I could have put my thumb down into the uterine cavity. Of course, the infection was blazing away rapidly. The infection in ruptured ectopic pregnancy comes from tubal infection already present, or an inflamed appendix, or possibly through the blood in patients with low resistance. I have had one patient whose appendix perforated in the midst of a ruptured ectopic mass. The pathogenic bacteria in these cases are the colon bacillus or the ordinary pus producing bacteria.

Infection Incident to New Growths: Neoplasms are a prolific source of pelvic infection. I have seen a ruptured dermoid set up a peritonitis that quickly terminated in death. Even benign tumors may be the source of infection. A striking case under this head was one of twisted pedicle of a large ovarian cyst, in a woman four and a half months pregnant; the circulation even down into the broad ligament was thrombosed, and the patient saved from imminent death only by prompt and radical operation. The infection in an instance of this kind develops because of the obstructed circulation, which offers lodgment for pathogenic bacteria floating in the blood.

Malignant growths, such as carcinoma, constitute an infection of themselves none the less severe because of their slow development and in addition to the specific nature of the growth which has recently shown that in fifty per cent. of the

cases of cancer of the cervix in which the glands are invaded streptococci are to be found in the glands. This is an added reason for using every precaution when doing hysterectomy for carcinoma of the cervix.

Infection From Appendicitis: I think we do not fully realize the role that the appendix plays in producing pelvic infection. Certainly in most cases of considerable pus formation, either with or without rupture of the appendix, the most usual place to find pus, outside of the immediate vicinity of the appendix itself is in the pelvis. Indeed, the pelvis is the location best suited to care for the septic pus. Besides it should be remembered that in a large per cent. of people both healthy and diseased, the appendix is situated wholly or in part in the pelvis, making it the most natural thing to do to infect the pelvic structures. Infection from appendicular inflammation is due to pus producing organisms, tubercle bacillus, or the colon bacillus.

Puerperal Infection: Infection during the puerperal state always has been and always will be deplorably too common. That it occurs less frequently now than in the days of Semuelweis, when medical students went direct from the dissecting room to the lying-in-woman; and too, without any appreciation of the relation between the cadaver, the accoucher, and the septic patient, is due to a better understanding of the subject. Happily, that day is passed, in theory at least; but has it passed in practice? Does the accoucher of today always observe careful technic of his hands and the vulva, or does he rely on the fact that most women do not get infected, therefore, feels justified in taking chances with the one he is now attending? Much might be said along this line. Let it suffice however, to add that puerperal infection should be stamped out of existence. This can be done only by educating both profession and laity to its true significance.

Gonorrhoeal Infection: Of all the horrible, filthy, mutilating diseases common to our day and generation, gonorrhœa

easily takes the lead. I will not ask you to go to the blind asylums and see the vast hord of helpless children with sightless eyes due to the Neiser diplococcus, whom you are paying taxes to support, nor shall I recall the number of physicians and nurses who are wearing glass eyes because of an accidental contamination from the same source; that would carry us too far afield, but I wish to direct your attention briefly, to infection of the pelvic organs from this well nigh universally distributed bacterium. Gonorrhœa stands at the head of the list as a cause of pelvic inflammation. Every operator of experience will testify to the truthfulness of this assertion. In both guilty and innocent the germ of Neiser takes first rank as an infecting agent; in fact, gonorrhœal pus tubes may be accepted as the typical type of pelvic inflammation. The immoral woman always contracts gonorrhœa; the young man sows his wild oats which develop into full fruition in his confiding, unsuspecting wife's Fallopian tubes. While writing this paper there lies a lovely young woman with pus tubes complicating her puerperium. She is the second wife of the husband, the first wife having succumbed to the same malady. Both innocent as the unborn babe as to the cause of their ailment. Another case a few years ago in which the wife had a large pelvic abscess and the four year old daughter had acute vaginourethral gonorrhœa. A young woman consulted me recently to know if she had this disease, after examination I said, "No, but there is no doubt you will have it, simply persevere."

Certain hospitals profess not to take patients of this class, but the one I work in is never without several of the kind.

Here is the picture; first, the contamination, secured innocently or of malice aforethought, then urethritis with urinary disturbance, then the endocervicitis, followed by tubal infection, sharp constitutional reaction, pelvic peritonitis and mayhaps general peritonitis, and finally the development of greater or lesser quantities of pus in and out of the tubes with all pelvic structures intimately bound together by plastic protective

adhesions. This inflammatory mass is teeming with live gonococci which fortunately die in this situation with surprising quickness, long before the pus, particularly that in the tubes, is absorbed. This fact gives the key to the treatment.

Treatment of Gonorrhoeal Pelvic Infection: I cannot better set forth the correct way of treating a case of this kind than to give you briefly the method of Dr. F. F. Simpson, who has worked out what I conceive to be the most effective plan of handling these cases. In the first place he keeps the patient in bed; next he uses no douches, unless it be for cleansing purposes; these patients do well without douches. He does little manual examining. He feeds carefully and keeps the secretions going. He operates only after the temperature has been normal three weeks. When he thinks the case is about ready for operation he examines the patient and if the temperature goes up he waits a while longer before operating. He reasons that if an examination, which is mild trauma, will cause the temperature to rise, it is because toxins have been squeezed into the circulation and an operation at that time might turn loose a fatal dose of toxins. Late in the disease the gonococci are all dead, the pus is sterile, and toxins are innocous.

This is sound doctrine and safe practice. The axiom then should be: do not operate on your cases of gonorrhœal pelvic infection or so-called pus tubes during the acute stage, but wait till all chance of systemic infection has passed. I confess I do not wait as long as Simpson does. I saw one woman in a large Pittsburg hospital last fall while on a visit to Simpson, who had been in bed six months and still had a little rise of temperature. Simpson said it would probably be two months before he operated on her. True, this was an extreme case. My patients are too poor to stay in the hospital so long; besides, both patient and surgeon get impatient, yet there is no denying the fact that Simpson is right.

Treatment of Puerperal Infection: Puerperal infection assumes a different form from that of any other type of pelvic

infection. Here the lymphatics play a prominent role and the extension by continuity, as in gonorrhœa, is decidedly less. Broadly speaking, we have three types of bacterial invasion occuring during the puerperium; first, bacteria that produce the condition known as sapræmia, in which the bacteria do not advance further than the uterine mucosa or the wound in which they lodge, but there is an active production of toxins which are rapidly absorbed into the system. In these cases the most striking results are obtained by simple douching with possibly a light cleansing of the mucosa with a dull scoop or the finger.

In the second and most severe type the bacteria themselves pass into the lymphatics and general circulation producing a very toxic bacteriæmia. In these cases the local treatment is in a measure efficient but can hardly be said to be sufficient. This type of infection gives our high mortality. It seems that local measures as already outlined for sapræmia, opening the cul-de-sac and gently filling it and the uterus with iodoform gauze, also pushing strips of gauze into the sodden septic cellular tissue, together with supportive and eliminative treatment, ice bags on the abdomen, and placing the patient in the modified Fowler position constitute about the best known remedies for this terrible condition. Hysterectomy is occasionally permissible. The serum treatment I have tried and while it apparently does good in some instances, I am no more certain of its results than when I first began to use it. The third type is infection by Klebs-Lœffler bacilli. I have seen two typical cases of this kind, both cured by the use of antitoxin.

Treatment of Pelvic Inflammation Due to Infection From Appendicitis: I will not open the general question of treatment of appendicitis, limiting my remarks to the pelvic complication only. An inflamed appendix hanging low in the pelvis is far less dangerous than when situated higher, the pelvic peritoneum being so much better suited to limit the infection by the rapid formation of adhesions and the fact that this por-

tion of the peritoneum absorbs fluids much less readily than does the same serosa in the upper portion of the abdomen. If seen early these cases should be operated on by abdominal appendectomy; while late cases should be watched carefully till adhesions form, then remove the appendix or if the pus bulge the posterior vaginal fornix do an Henrotin incision.

Treatment of Infection Incident to New Growths: In active infections from this source operation should be done with great promptness; while in both acute and chronic cases, streptococcic invasion of the glands in carinoma being an instance of the latter, the most painstaking technic should be observed.

Treatment of Infection Due to Ruptured Ectopic Pregnancy: If the peritonitis be too active when seen I would wait till the process became localized. If the infection be mild and the hemmorrhage alarming I would operate promptly.

Treatment of Pelvic Tuberculosis: This should be radical, removing every vestige of every infected organ, but usually the tubes are the parts first and most seriously involved and their ablation will cure the patient, if done early. It is a question in my mind whether or not it is best to remove the ovaries in these cases. Perhaps in some instances they should be removed while in others they had better be left. Appendectomy should also be done since the appendix is so often affected in tuberculous cases. There is no type of tuberculosis that is more amenable to surgery than is tuberculous salpingitis.

Treatment of Infection From Trauma: The proper course to pursue under these circumstances must be determined by each individual case. If the trauma is recent it must be repaired after the most careful cleansing; if infection is already present, free drainage offers the best chance of recovery. Should there be a perforation of the uterus, hysterectomy is indicated, as a rule.

CANCER OF THE UTERUS OPERABLE AND IRREMOVABLE.

Jno. T. Burrus, M.D., High Point.

The reason for my assuming this paper and this idea is because of the eighty thousand people that are dying in our country each year from cancer. In my selection of a subject of such broad and unlimited expanse I want to say in the beginning that I am cognizant of the fact that I shall be unable to more than give a brief symposium of some of the salient facts of diagnosis and treatment. My deductions for the foregoing are based largely on actual experience in personal work at the High Point Hospital, the Skin and Cancer Hospital, New York, and the Polyclinic, New York, together with data gathered from work done by Prof. Wm. Seman Bainbridge. In this connection I wish to call attention to the excellent work which is being done by Dr. Bainbridge for cancer. It became my privilege to observe something like a thousand cases of cancer treated by him, according to varied methods, such as hancleipawn crown, acetic fluid, Caleys serum, enzymes and vaccines.

For purposes of diagnosis, I shall consider cancer of the cervix and uterine body separately. Early cancer restricted to the cervix alone gives rise to but two principal symptoms—a watery leucorrheal discharge and hemmorrhage. Pain is of no consequence. I want to emphasize that early diagnosis is the most important factor, without which, ends of successful treatment are largely defeated. Where there is the slightest suspicion of the presence of malignancy, a most careful exploration should be made at once. Much depends on our early recognition and right interpretation of the watery discharge and menorrhagia. Never for an instant temporize, regardless of age, in the presence of a history of characteristic watery

discharge, however slight, associated with irregular or atypical menstruation. The experienced diagnostician should find little or no difficulty in discovering a cervical malignancy by digital examination and the use of a speculum. I regard the peculiar watery, odorless discharge as almost diagnostic of early cancer in a woman of "Cancerous age." Old lacerations where the cervical lips evert with consequent eversion of the cervical mucosa, in the presence of suspicious history, should be classed malignant, unless proven otherwise. Many of my cases of cancer of the cervix are found in women with neglected cervical tears,—— of 75 cases of cervical cancer showed cervical laceration. As a causative factor I believe this to be of the greatest importance. It has been proven that any normal cell can be transformed into a maligant cell by the aid of an external irritant. I believe that the greater frequency of cervical cancer is due largely to the greater irritation and muscular activity of the cervix caused by injury to the cervix, etc., in the presence of a laceration. Nodules, ulcers and polypi should be looked upon with a suspicious and scrutinizing eye. Doubtful conditions should not be watched, but surgically treated. I always have the pathologist reports, and his services have been of signal aid, but in some of these cases, I believe that the promiscuous curetting for specimens for the pathologist should be condemned for the reason that there is danger of kindling a slow growth without metastasis, (changing the operable to the inoperable, and hope to despair).

After exhausting all means at hand to make a diagnosis, and the condition is found suspicious and obscure, treat surgically —the sin of omission is greater than that of commission. It is not the purpose of this paper to enter into a discussion of a classification of cervical cancers. Suffice it to say that the intra-cervical cancers are more difficult to diagnose than when the vaginal portion of the cervix alone is diseased. From a diagnostic standpoint the intracervical form presents chronical symptoms in common with that of the uterine body.

Primary cancer of the body of the uterus is a comparatively rare condition. Bullard, in "Surgery, Gynecology and Obstetrics" in 1908, reports 686 cases collected by different surgeons and found the body of the uterus primarily affected in only thirteen of the cases, showing the occurence to be less than two and a half per cent. of all cases of uterine cancer. The distinctive characteristics of this form is its slow growth, less pronounced symptoms, and comparatively low percentage of metastasis. In this form too in the early stage the watery leuchorrheal discharge with irregular and, may be, slight hemorrhage, is present. It is not necessary to have all the text book symptoms of a uterine cancer to be able to make a correct diagnosis. An enlarged uterus watery discharge and irregular bleeding, other causes being eliminated, is sufficient to warrant a diagnosis. If necessary, curette and get the pathological findings. Recurrences are rare in this form when operated early with removal of uterus and adnexa. My experience teaches me that the necessary operation should be performed immediately after a curetting, providing the findings are suspicious. (In this paper I have purposely omitted sarcoma, as the diagnosis and treatment presents much in common with carcinoma).

The dividing line between operable and irremovable cancers has always been to me imaginary and obscure. A case classed inoperable by one surgeon might be termed operable by another, and vice versa. The consensus of opinion is that in all cases where diagnosis is made sufficiently early there is no question as to the correct treatment. At this stage they are all easily in the operable class. No present day surgeon would hesitate after an early diagnosis had been made. (In diagnosis I have purposely omitted the train of symptoms found in the more advanced stage of cancer of the uterus. The diagnostician is rarely ever in doubt in well developed cases).

In concluding the issue of operable and inoperable cases certain factors bearing on prognosis proves to be the determining

influence of decision. In summing up these factors particular notice should be given age and physical condition of patient, the particular type of tumor and local characteristics presented by the growth. The extension of the growth to the bladder, rectum, vagina and parametrium together with metastasis to the iliac lymph nodes should receive closest and most differentiating study. In summing up I shall divide the operable into two classes. First, the "easily operable" case, where the diagnosis has been made. In this class the mortality is low and percentage of recoveries comparatively high. In this connection I will report a case with diagnosis and special form of surgical treatment. Also results.

Mrs. W., age forty, apparently in perfect health, was seen three years ago this June. The only symptom present was copious watery discharge from the vagina. Previous to this time she gave a history of menses lasting four days, coming regular without pains or discomfort; and the first symptom present was that the menses continued with the patient two days longer, making a total of six days. For these symptoms the patient consulted her local physician, who referred her to the hospital that I was connected with at that time. Examination was made of the vagina, uterus and its appendages, which examination disclosed a previously lacerated cervix which was eroded, lacerated, everted and exceedingly sensitive to touch. It is readily seen that this was a pre-cancerous condition, to say the least, if not at that time truly malignant. The patient was placed in the hospital and a bi-opsy made; which showed a very rapidly growing carcinoma of the cervix. The abdomen was opened two days following the pathological report. The entire uterus, with as much of vagina as could be removed, the ovaries, the broad ligaments and the pelvic glands were removed, doing what we know as a Vertine operation. This patient made an uneventful recovery and now three years have elapsed and the patient has not returned to the hospital up to this time for treatment, but *had* reported herself apparently

well. I had an opportunity of observing a number of Dr. Bainbridge's patients that he had operated four and five years previous in the same way. Patients were apparently in perfect health.

The second case I will term "difficultly operable." The great number of apparently inoperable patients seen who have gone the rounds reflect credit on the diagnostic acumen of our profession. However, I believe that we are awakening to the true surgical possibilities in all cases. In the "difficultly operable" class I place on the doubtful list many which are generally termed inoperable. Many of the apparently inoperable cases will be found, after exposing the true condition by an exploratory laparotomy, amenable to surgical intervention, who might otherwise be treated along palliative lines. I am well aware of the fact that the comparatively high mortality rate and low per centage of cures reflects adversely on surgery in some of these cases, but the benefits as a whole justify to my mind the procedure. If in doubt, make exploratory laparotomy. Owing to the fact that the size of the cancer growth does not bear a true relation to metastasis, it is my policy to do a complete and thorough operation in every case, making all necessary dissections with the widest possible excisions. Many cases with an apparently hopeless prognosis are practically cured or their lives prolonged many years, while on the other hand cases with optomistic prognosis are little benefitted. Consequently I believe that it is our duty to do complete and thorough surgery in all cases. Such cases referred to, or cases where there is a metastasis in the broad ligaments, such metastasis is not bound down, neither is it connected with the rectum or the bladder, and before carcinosis or carcinomatosis has developed. Certainly it behooves us to do something, and I believe we can greatly prolong the lives of our patients by following out the operative procedure advised by Vertine. Nothing short of this operation will benefit the patient whatsoever. I do not believe in vaginal hysterectomy as an independent surgery for malig-

nancy, for the reason that the pelvic tissues cannot receive the necessary attention. Occasionally the combined method might be advantageous. I believe that more complete hysterectomies should be done for non-malignant conditions, thus avoiding later malignancy of the cervix.

When the malignancy has extensively involved the bladder, rectum and adjacent pelvic tissues and organs, in a manner which admits of no shadow of a doubt where the pelvis is, I class it "irremovable," but not inoperable. Our responsibilities do not end here. Much can be done in the septiable cases. We cannot cure these patients, but, if we can give them added days of comfort and usefulness with some inspiration of hope, we have indeed served a beneficent purpose. Literature is filled with results obtained by the use of the curette and cautery. I do not discard them, for they have added many days to human life. I believe that we fail, however, in doing our duty in selected cases if we do not seek to cut off the blood supply to the growth. I would advise this in connection with cautery and curette.

The Ligation of the Internal Iliac and Sacromedian Arteries: I wish to call special attention to the results which Dr. Bainbridge has obtained in this operation, which, so far as I know, is original with him. I have assisted him in the ligation of the internal iliac arteries with cases that seemed about hopeless, where hemorrhage was so excessive that the patient had very little blood left in the body. And it is in this class of cases, where there is such a drain upon the system that Dr. Bainbridge conceived the idea of cutting off the blood supply by the ligation of the internal iliac arteries and the sacromedian. The class of cases that this operation is applicable to is that class where there is a metastasis into the broad ligament extending back to the rectum involving the vaginal lymph nodes and the adnexa. Where there is the beginning of carcinomatosis with excessive hemorrhage. Now with such a class of cases as this I have seen patients unbelievably put on flesh, be

relieved of pain and apparently the size of the growth reduced. I wish to urge any one who has such a case as this not to fold their hands and submit to the inevitable, but let each one of us endeavor to lower the mortality of cancer.

Summary: The early diagnosis of cancer of the uterus; 2nd, the early operation in the precancerous stage; 3rd, the three periods in cancer of the uterus demanding active treatment; 4th, Vertine's operation, cauterizing the uterus and the ligation of the internal iliac arteries.

"TEN YEARS AMONG FIBROIDS."

C. M. Strong, M.D., Charlotte.

This is not to be a scientific paper, only a plain "John Plowman's" talk to common sense Doctors. The opinions and conclusions I express are purely personal, and of course may be erroneous. My reason for writing this paper is that I probably have had as many fibroid operations as any other physician in the State, and my opinions and conclusions might possibly be beneficial to my fellow practioners. My experience covering about ten years of surgical work in the five hospitals of this city, enables me to have kept fairly correct record of the different cases.

"Ten Years Among Fibroids," Dr. C. M. Strong, Charlotte.

Dr. R. L. Payne, Norfolk, Va.: *Mr. President*: I do not know that there is anything that I can add to Dr. Strong's paper. I wish to say this, though, that I have had two cases within the past two years that will illustrate the fact that sometimes fibroids do disappear without operation. I do not wish to report these cases as being any argument against the operation for fibroids, but simply as curiosities.

First, a woman who had a large fibroid about the size of an egg in her uterus, which I discovered while curetting for incomplete abortion. I told her husband he had better not say anything to her about its being a fibroid, but to leave it there and have an operation after her recovery while the tumor was quite small. When she came to me five months later that fibroid had disappeared during the process of involution.

Some years later I was called to see a patient who had one baby and whose doctor thought she had another undelivered. There was no uterine action, and so I was called. This was

twelve hours after delivery. I found a very large fibroid in the uterus instead of a baby. This disappeared during the process of involution.

Now these are cases that there cannot be any doubt about, and that illustrates that fibroids do disappear, but of course are not an argument against the necessity for operation.

Dr. J. E. Malone, Louisburg: *Mr. President*: Right on a line with the subject of Dr. Payne's cases, I had a lady patient who was about thirty-eight years old, married, and in due course of time gestation set in, and about the third month I discovered some hard nodules on the uterine wall, of pretty good size. I suggested that she go to some hospital, and they selected Johns Hopkins. I am not going to let them go North of the Mason and Dixon line any more. She was very sick and weak. She dragged her limbs at the time,—a pitiable looking case.

They told me to come around to the examination room next morning at ten o'clock and let's see what was the matter. I didn't want to see. I wanted to get out of it, and I told the janitor when they got through there to give me the wink and let me know, and he did, and I went in, and they had taken my patient into the anesthetizing room. I noticed on the blackboard, "Mrs. So and So, brought by Dr. Malone of Louisburg, N. C. * * * Fibroid tumors of the uterus. * * * Pregnancy * * *11:30 to be operated on."

Then I went in. They wanted to know where I had been, that they wanted me to examine the case with them; they had examined it and had decided to operate. I asked if they were bound to operate, and they said they didn't know. I said, "If I were in your place, I would not operate." They said, "We don't think so, either."

I took my patient back home and the tumor disappeared in about two weeks. In about fourteen months it returned. Gestation went on. She did not go to any hospital. Each labor

was as normal as any I ever saw in my life. The third time we felt the tumor, but it was not quite as large as the former one. She had three fine infant children.

"Ten Years Among Fibroids," Dr. Horsley, Richmond, Va.:

Without meaning to be a punster I believe the position taken by the essayist is a very *strong* one. It would be most unfortunate to let the exception govern instead of the rule. Every now and then we see cases of appendicitis that recover without operation. There are on record instances in which cancer has healed spontaneously, diptheria may sometimes recover without treatment by antitoxin; but no one is justified in waiting for these exceptions in the way of recovery. If we govern our actions by the possibility instead of the probability in surgery everything would be in a very chaotic condition. It is certainly true that fibroids sometimes get smaller about the menopause, but there is nothing mysterious about this. We know that the size of an organ is dependent upon its nutrition and that the more function a part has the greater is its nutrition. Consequently, when at the time of the menopause the main functions of the uterus and ovaries cease, their nutrition is also cut down. This necessarily affects the nutrition of the fibroid, which is indirectly dependent for its growth upon the blood it receives through the ovarian and uterine arteries. In this way the fibroid decreases in size just as the uterus does and just as any part of the body would after its nutrition had been diminished. The fibroid gets its blood supply directly from its capsule. Sometimes from trauma the blood vessels in this capsule are injured and a hematoma appears. This decreases the nutrition to the fibroid. Again, the fibroid may be practically pedunculated when a slight twisting of this pedicle will decrease its blood supply. Constitutional diseases such as arteriosclerosis or any hyaline degeneration in the capsule cut down the nutrition and so the size of the fibroid is diminished, but even when its size is diminished its potentiality for

danger is not decreased. Anyone who has made careful sections of fibroids that they have taken out will be impressed by the frequency with which various degenerations occur. Not only is a sarcomatous change met with occasionally, but as pointed out by Wilson of the Mayo's clinic carcinomatous degeneration is even more frequent. This results indirectly from the mechanical irritation by pressure of the fibroid on the endometrium. I have been much impressed by two cases of this kind that I have seen recently. One appeared to be merely a large round fibroid and the hysterectomy was exceedingly easy. On gross section it showed what appeared to be marked hyaline degeneration with areas of necrosis. Microscopic examination showed very clearly a rapidly growing sarcoma, which had resulted from degeneration of the fibroid. The second case was one in which cancer resulted from pressure of the fibroid on the endometrium.

Besides malignant changes various degenerations such as hyaline, cystic and calcareous degeneration occur, and we often find that the products of these degenerations when absorbed produce pronounced constitutional effect upon the patient, particularly upon the cardiovascular system. This means it is essential to do the operation as quickly as is consistent with thoroughness. I have found a great time saver in the button hole stitch, which produces perfect hemostasis and at the same time sufficient approximation to cover in raw surfaces. In this way the time of the complete operation for extirpation of a fibroid can be very materially reduced.

Dr. Strong closes: I thank the gentlemen for discussing this imperfect paper.

In reply to Dr. Payne, would say that I know that a certain per cent of cases do disappear, but as Dr. Horsley explained that I do not think it is necessary for me to enlarge upon it. It has not been my fortune to see one entirely disappear. I know sometimes they do not give much trouble, but the point

I wished to make was that we do not know when they will give trouble.

From Dr. Malone's discussion I think the woman was very fortunate to have fallen into the hands of such a good obstetrician. I should not have wanted the job. It must have been a subperitoneal fibroid, to say the least. As a general rule you have trouble later from degenerative changes after labor.

Dr. Horsley's discussion was in line with my paper.

Again, I thank you, gentlemen, for discussing the paper.

"Some Observations and Conclusions Found During an Experience of Ten Years in Opium and Alcoholic Habitues," Dr. S. M. Crowell, Charlotte.

Dr. I. M. Taylor, Morganton: *Mr. President*: I got in late for the reading of the paper, so I just heard the conclusion.

I have had some experience in the treatment of inebriety and drug habits and the more I see of the drug users and drunkards, the more I class them with the insane. I believe it is all based upon a faulty heredity, introduced, sometimes, to the use of these drugs by the physician, and sometimes by a vicious tendency they find in these drugs, whether alcohol, opium or cocaine, a sedative, which the system has been craving without their knowledge.

The inebriate is discovered only in this way and he gets well only in exceptional cases.

It may be possible for some persons to use alcohol, opium, or maybe cocaine judiciously for a prolonged period, and then to stop, but if we engraft such a habit on a faulty heredity which dates back to a long line of faulty people, to people whose ancestry carries a line of insanity, or gout or rheumatism, especially if they have been members of the family who have developed psychoses and marked neuroses, we have incurable and hopeless inebriety.

DR. FLETCHER: I just want to ask Dr. Crowell,—those of us who are not engaged in this sort of work would like to know the per cent. of cures in these cases of confirmed habitues. What per cent. are cured, to stay cured, when he replies.

DR. CROWELL: I would like for Dr. Taylor to answer that.

DR. TAYLOR: I have not studied the statistics of eleemosynary institutions,—the institution where the treatment of these people is based on their needs. The treatment of the people that come under my care is based entirely upon whether they can pay my fees or not, and so far as I go, I do not suppose my results would amount to more than one-half of one per cent.

DR. CROWELL closes: *Mr. President*: I wish to thank Dr. Taylor for discussing my paper.

As to the per cent. that remain cured, I am unable to say definitely although I have given that phase of the subject right much study without compiling any data. I do know that during the past ten years I have cured quite a number of people who have not relapsed up to this time,—remaining cured anywhere from ten years down to one year, and I consider this a pretty good report.

Many institutions and individuals in this line of work claim too high a per cent. of cures in making their reports. There are a certain number who will relapse, just as is the case in malaria. However, this is no fault of the treatment. Where a certain per cent. relapse it is sometimes the fault of the doctor who treats them, by letting the patient go away from the hospital too early, often in two or three weeks, whereas they should remain longer, perhaps for so many months.

The fact that we cannot get around is that Inebriety is a *disease* amendable to treatment, and we as physicians must so recognize it, and if, as Dr. Taylor claims, (and I cannot agree with him), it is a symptom of insanity, then that is still more evidence in favor of my claim for State aid in indigent cases

of Inebriety. They should have as much recognition as any case cared for by the State Hospital, and the day is rapidly coming when this will be the case. It must come!

HYPERTROPHIC BILIARY CIRRHOSIS, *with* REPORT OF A CASE SHOWING UNUSUAL FEATURES.

R. B. Hayes, M.D., Fayetteville.

As cases of biliary cirrhosis are of infrequent occurence and the prognosis uniformly unfavorable regardless of my plan of treatment adopted the subject, except from the standpoint of diagnosis, is one of little interest to the physician engaged in general practice, and it is due only to the unusual features of the case to be reported that I presume to bring it to the attention of the Society.

Probably the simplest classification of the cirrhoses of the liver, and one which is, at the same time, adequate from a clinical standpoint, is that of Hawkins, in Allbutt's System of Medicine.

First: "Portal cirrhosis," to which is nearly all cases the terms *alcoholic* and multilobular may be applied, the chief features being the decreased size or moderate enlargement of the liver, the tendency to hematemesis and ascites, and the rarity and unimportance of jaundice.

Second: *Hypertrophic biliary cirrhosis,* a disease characterized by its long duration, the presence of chronic jaundice, enlargement of the liver and spleen and atacks of abdominal pain with pyrexia (crises), and by the absence of persistent ascites or signs of portal venous obstruction."

The review of the condition which I shall make before describing the case lacks any effort at originality, being simply a description such as may be found in any standard work on practice of Medicine.

Hypertrophic biliary cirrhosis, Hanot's cirrhosis, Hanot's

disease, Biliary cirrhosis, as it is variously termed, is defined by Fletcher as "A disease characterized *clinically,* by its long duration, by the presence of chronic jaundice, enlargement of the liver and spleen, and intercurrent attacks of abdominal pain with pyrexia (crises), and by the absence of persistent ascites or signs of portal obstruction. *Histologically* by cholangitis and a cirrhosis primarily monolobular in type."

This form of cirrhosis was first described by Requin in 1846, but our accurate knowledge of it, as a clinical entity dates back to 1876, when Hanot published his classical series of cases describing accurately the distinctive clinical features of the disease, associated with the pathologic changes in the liver described by Cornil in 1874 as occurring in a case of hypertrophic cirrhosis of the liver, associated with splenomegaly.

As to its *etiology,* it is a disease of young people, the majority of cases occuring between the ages of 20 and 35, rarely after forty; differing in this respect with the alcoholic cirrhosis of Lænnec, the average age of the occurance of this being 48.

Males are affected more frequently than females, the proportion being 22 to 4 in Schachmann's series of cases, while in the juvenile type, Gilbert and Fournier, and Fletcher have collected 22 cases of which 13 were in males and 9 in females.

Race and *climate* seem to have but little influence upon the incidence of this disease.

That *heredity* may have some bearing upon the condition is shown by the fact that Dreschfeld, Hasenclever and Osler have reported instances of two or more cases occuring in a family; while a number of other observers have reported cases showing a family tendency to chronic jaundice with enlargement of the liver and spleen.

It appears that *alcohol* plays no part in the causation of this form of cirrhosis, although a history of alcoholic excess has been obtained in a few instances. Fletcher calls attention to

its extreme rarity in Great Britian where the use of alcoholic beverages is so universal.

Cases have been described as occurring in connection with *syphilis, scarlatina, enteric fever* and *malaria;* but none of these has shown the clinical and pathological findings of biliary cirrhosis.

Osler has found staphylococci and sterptococci, Gilbert and Fournier the colon bacillus, and Hayem the pneumococcus in cases of this disease, but it has been impossible to prove that their presence was not due to a secondary or terminal infection

Attempts to produce this form of cirrhosis experimentally by the use of various poisons have proved unsuccessful, although the liver shows a decending cholangitis which must be due to some toxin reaching it through the blood stream.

In a large proportion of cases there is absolutely nothing which can be considered as bearing any etiologic relation to the occurrence of the disease.

Morbid Anatomy: The liver is usually greatly enlarged and may attain, according to Osler, the weight of 4000 grams. The enlargement is uniform, the surface of the organ smooth or may show minute white granulations. There may be some peritoneal adhesions due to a perihepatitis, but they are not so common in this as in multilobular cirrhosis.

On section, the substance is firm and varies in color from a deep yellow to an olive green.

The intra-hepatic bile ducts show no changes to the naked eye. The gall-bladder and larger bile ducts may contain viscid bile, but are otherwise normal.

Histologically, the most characteristic feature is the monolobular character of the cirrhosis, the newly formed connective tissue surrounding each individual lobule and fine fibres may even be seen extending into the outer zone of the lobule separating the individual cells. Elastic fibres are present, but to a less degree than in multilobular cirrhosis.

There are numerous psuedo-biliary canaliculi ramifying and anastomosing freely in the connective tissue, but these are not characteristic as they are found in other forms of cirrhosis.

The liver cells show slight change. Except in advanced cases there is little degeneration. On the contrary, regenerative changes have been noted and even a hyperplasia of the cells, to which cause Hanot attributed the increased size of the organ.

Very characteristic changes occur in the small bile ducts, the epithelium of which has undergone proliferation to such a degree as to nearly or completely occlude their lumina or they may be blocked up with desquamated cells and inspissated bile.

The blood vessels are entirely normal, pigment injected into the portal vein readily finding its way into the hepatic veins.

The spleen may be greatly enlarged weighting, at times, as much as 600 grams. There may be perisplenitic adhesions and thickening of the capsule. The substance is firm. No characteristic naked eye appearances exist.

Microscopically, there is seen to be a diffuse fibrosis. The Malpighian bodies may have undergone a lymphatic hyperplasia and appear more conspicious than usual, or they may have atrophied and been replaced by fibrous tissue.

The *lymph glands* may be hypertrophied especially those at the hilum of the liver which may press upon the bile ducts and thus become a factor in the production of jaundice. This, however, is of rare occurrence.

Hanot called attention to and emphasized the fact that the *stomach* and *intestine* show slight changes or none at all.

There may be localized *peritoneal* adhesions about the liver and spleen, but in unmixed cases there is seldom the same degree of thickening and opacity of the peritoneum that is found in multilobular cirrhosis. At autopsy a small amount of ascitic fluid is usually present.

The pancreas is generally normal in size and shows no macroscopic changes, though a slight degree of fibrosis may exist.

Changes in the vascular system are rare.

Pathology: Hanot's opinion that the essential feature of hypertrophic biliary cirrhosis is a catarrhal inflammation of the bile capillaries, is supported by the histologic findings and by the clinical course of the disease.

That the toxic agent which produces the cholangitis reaches the liver through the blood stream is evidenced by the fact that the histologic changes and the character of the jaundice correspond closely with those produced by poisoning with toluyendeiamine. Whether the toxic agent is bacterial or otherwise has not yet been determined.

The above is the opinion of Rolleston and is in direct opposition to that of French writers, (Gilbert and others), who hold that there is an ascending infection starting in the duodenum and extending up the bile ducts into the liver and ascending cholangitis.

That Rolleston's is the correct view is supported by the fact that the inflammatory changes are usually confined to the smallest bile ducts. The ducts of larger calibre may be plugged up with viscid mucus resulting from the catarrh of the smaller ones, but the largest intrahepatic and the extra-hepatic ducts show no change. The pancreas, also, is not enlarged as would be the case did chronic duodenal inflammation exist; and the spleen is frequently enlarged coincidentally with or even preceding the hepatic enlargement. Such could not be the case were the toxic agent distributed otherwise than through the blood stream.

SYMPTOMS AND COURSE.

At the onset of the disease there is usually a slight degree of jaundice, malaise, anorexia, dyspepsia, headache, and a feeling of weakness. There may be also nausea and vomiting, diarrhea or other gastro-intestinal disturbances.

The patient may complain only of a sensation of weight or dragging in the abdomen, or there may be acute pain.

The liver is uniformly enlarged and is apt to be tender. The enlargement of the spleen, as stated above, may precede that of the liver and, at times, possibly exceed it. There is usually a moderate degree of pyrexia. Ascites is absent.

The urine contains bile pigment, and the stools are normal in color as there is no obstruction to the entrance of bile into the intestine.

These symptoms may disappear in a few days or persist for several weeks and then subside, with the exception of the jaundice and enlargement of the liver and spleen which are apt to persist.

A feature of the disease is the occurence from time to time of febrile attacks (crises) in which there may be pain and hepatic tenderness, deepening of the jaundice and increase in size of the liver and spleen.

Its course is usually prolonged, lasting from four to twelve years. As it progresses the crises increase in frequency and there is a constant sensation of dragging, usually in the left side. Pain and pyrexia may become persistent, and hemorrhages may occur from either the stomach and intestine or the skin.

At any time a condition of *icterus gravis* may develop with supervening coma and a fatal termination.

The changes in the blood are not constant. There is apt to be a moderate reduction in the number of red cells, with a diminution of the hemoglobin. A slight leucocytosis is apt to be present, particularly during the crisis.

The urine, as was stated above, contains bile pigment and may be a trace of albumin. Urea may be present in the normal amount. Polyuria may occur.

Diagnosis: The diagnosis in a typical case should not present any great difficulty.

The history of jaundice of long duration in a young person, without the presence of acholic stools, the absence of ascites and other symptoms of portal obstruction, and the occurrence

of crises, with progressive enlargement of the liver and spleen, should make an easily recognizable picture.

It is only the occurrence of atypical symptoms that should make us in doubt as to the diagnosis.

The *differential diagnosis* must be made from *portal cirrhosis.* The absence of ascites and dilated veins, the late appearance of hematemesis and persistence of the jaundice should suffice.

In *cholelithiasis,* the liver is slightly, if at all, enlarged; the spleen is normal in size, jaundice, if it should occur, is apt to be deeped and associated with acholic stools. The pain occurring during the crises may simulate that of a very mild attack of biliary colic, but does not approach in severity the agony of a typical attack.

In *malignant disease* of the liver, either primary or secondary, the rapid course, profound cachexia, and the usual occurrence of obstinate obstructive jaundice with acholic stools are sufficiently distinctive features.

In simple *splenic anemia* there is splenomegaly; but the liver is not enlarged. There is diminution in the number of white blood cells, with a secondary anemia of the chlorotic type. When this is associated with cirrhosis of the liver, we have the syndrome known as *Banti's disease* in which there occur ascites and hematemesis with the usual symptoms of portal obstruction.

In *hydatid disease* of the liver, the enlargement is not uniform, the spleen is not enlarged, and chronic jaundice is rare.

In a rare form of cirrhosis of the liver due to intestinal intoxication, described by Budd, which Hanot called *"Budd's cirrhosis,"* there is great hepatic enlargement, but no jaundice and no splenic enlargement.

Hanot, and later Marcais, described a diffuse form of hepatitis associated with syphilis, in which there is uniform enlargement of the liver with chronic jaundice. The spleen may or

may not be enlarged. Its duration is shorter than that of Hanot's disease.

The *prognosis* is hopeless, although the course of the disease may be greatly prolonged and the patient enjoy a fair degree of health in the meantime.

Treatment: No treatment can be expected to restore the liver and spleen to their normal condition, or even to arrest the progress of the fibrotic changes when once started.

The patient should lead a quiet, well regulated life under good hygienic conditions. Except during the crises carefully regulated exercise should be taken, however, avoiding fatigue and exposure as tending to precipitate a crisis.

The diet should be simple and easily digested, free from stimulating condiments, etc. During the crises a milk diet is to be preferred.

Drug therapy. For the bowels, salines should be given or one of the natural saline waters as Condal or Hunyadi Janos.

If the stools are unhealthy and offensive, salol or B -naphthol may be tried. Calomel is the only drug which seems to have any direct effect upon the condition. It has been advised in repeated doses of one grain; or 1-10 to 1-2 grain may be given every 3 hours for three days. Then, after an interval of three days, continue its administration for three days more and so on for a month.

CASE REPORT.

Patient, a married, but non-parous lady, 40 years of age, was referred to us for diagnosis by a physician under whose care she had been for several months.

She was admitted to the hospital on March 27th of this year (1911) and gave the following history.

About two years ago a relative called attention to the fact that she was jaundiced. She was apparently in good health and had not noticed the jaundice until her attention was called to it. As it became more pronounced a physician was con-

sulted, who discovered that her liver and spleen were enlarged. She does not remember whether or not the stools were putty-colored at this time.

She was under medical treatment from September to November 1909, during which time she had several febrile attacks with some abdominal pain.

No benefit was obtained from this treatment so she underwent an exploratory laparotomy, at which great enlargement of the liver and spleen was found, but no gall stones nor evidence of malignant disease.

After this, her condition was worse. She lost weight and became very anemic. Had occasional attacks of pain, chiefly in her back, with dull dragging pain in the epigastrium; accompanied by chills and fever with increase of the jaundice and depression of spirits. The attacks lasted from two to seven days.

At these times she complained of dyspnea, and, as she expressed it her "Whole body feels puffed up." At times there was swelling of the lower extremities. There were no disturbances of appetite and digestion. She was always very "nervous" just before these attacks.

Several months before she came to the hospital she consulted the physican who referred her to us. By him she was put upon tonic and constructive treatment, there being a suspicion of luetic disease in her husband, she was given mercury and iodides. Her appetite improved and there was a decided increase in weight. The liver and spleen underwent some reduction in size.

However, the jaundice persisted and the febrile attacks were gradually increasing in frequency. There had recently developed a tendency to epistaxis and her menstruation, which until a short time previously had been uneventful, had become irregular and at times there was loss of blood amounting almost to flooding.

The only points in her past and family histories which might

be of any significance, were an attack of malaria, which she had twelve years ago, and the probably existence of specific trouble in her husband.

Physical Examination revealed nothing of importance, except that the liver and spleen were greatly enlarged. The liver was smooth and firm; and it, with the spleen could be felt forming a zone across the upper abdomen occupying all of the right and left hypochondrias and epigastric regions and encroaching upon the lumbar and umbilical regions, extending almost to the level of the umbilicus.

Nutrition was good; the patient being rather stout, and the muscles of good tone.

The skin was dry and showed definite icteric tint, and the sclerotics were decidedly yellow. No dilated veins were visible and patient did not complain of hemorrhoids. There was no perceptible glandular enlargement. Superficial and deep reflexes were normal. The thoracic viscera were apparently normal, and there were no local conditions to account for the epistaxis and menorrhagia.

The laboratory examination of the urine, etc., were as follows:

URINE: Quantity in 24 hours, 2000 C. C.

Specific gravity 1.015.

Color: Deep amber, having a greenish tinge contained a trace of albumin and much bile pigment. No sugar nor indican.

Urea content 14 gm. Total solids, by calculation, 70 gm.

The sediment contained no casts nor other pathalogic elements.

The low urea content was probably due to the restricted diet and lack of exercise.

STOOL: Was acholic, semi-solid, and contained some particles of mucus intimately admixed with the fecal matter.

Microscopically it was seen to contain much free fat and many fatty acid crystals, a few partially digested

muscle fibres, and cells, fibres, etc., of vegetable origin.

No parasites nor ova.

BLOOD:	Red cell count,	3,300,000
	Hemoglobin,	75%.
	Color index,	1 +.
	White cell count,	9,200-

Stained smear showed only a moderate degree of poikilocytosis with a number of macrocytes and microcytes. No malaria parasites.

STOMACH CONTENTS: After double test meal, recovered about 30 C. C. This contained recognizable fat and particles of meat, both taken with the first meal, and the residue of the bread of which the second meal consisted a small amount of mucus was present.

Microscopically, were to be seen mucus, few striated muscle fibres, fat globules, starch granules and budding yeasts.

The chemical analysis of the filtrate, gave:

Free HCL. 84.

Total acidity, 98.

In spite of the evidence of a slight degree of retention and the marked hyperchlorhydria there were no symptoms of gastric disturbance.

During the few days of her stay in the hospital, there occured one of the crises, in which the temperature rose to 101.2° and the pulse to 95, the respirations never exceeding 25. Patient complained of feeling chilly. The jaundice became more pronounced. Increased size of the liver and spleen was not noted.

Although her stools were acholic during the time of her stay in the hospital, patient said that they were, at times, normal in color.

In this case, the age of the patient, her sex, and especially the occurrence of acholic stools are the chief points opposed to the diagnosis of Hanot's cirrhosis.

Of course, her age at the onset of the disease (38 years), and her sex are points of minor importance, but the presence of acholic stools is a symptom to which considerable importance must be attached and cannot be lightly disregarded.

There was no cause for it that we could discover, the usual causes of simple obstructive jaundice having been eliminated by the findings at the operation.

To my mind the two hypotheses that are most likely to explain this condition are, *1st*, that the obstruction may be due to adhesions that have been formed since the operation which by producing a kink in the common duct may cause a more or less permanent obstruction to the outflow of bile from the liver and gall-bladder; or *2nd*, that lymph glands in or near the hilum of the liver may have recently become enlarged so as to press upon and occlude the common duct, preventing the entrance of bile into the intestine.

Whether or not either of these hypotheses serves to explain the presence of acholic stools, or whatever may be the cause, we feel that it can be disregarded as we believe the points tending to establish the diagnosis, the presence of jaundice of two years' duration with splenomegaly and hypertrophy of the liver, without ascites or dilated veins, with febrile crises and a tendency toward hemorrhage, evidenced by the epistaxis and menorrhagia, the moderate degree of anemia, and the absence of pronounced disturbances of digestion and nutrition, are amply sufficient.

ABSCESS OF THE LIVER.

WM. ALLEN, M.D., CHARLOTTE.

Mr. President and Gentlemen:

The histories of the two cases of amebic abscess of the liver are as follows:

Case 1. John James, negro, age 41, laborer, native of New Orleans: has lived here for 6 months. Family and past history unimportant. Has never had diarrhea. Admitted March 7, 1910, to the North Carolina Medical College dispensary, for constipation, vertigo, and general weakness. Has had this trouble for the past 15 months: had chills three weeks ago. Complains of pain under the right costal margin, of a troublesome cough, and of passing bloody urine. Normal weight 191, present weight 152 pounds. On examination shows large emaciated frame; tongue coated; eyes, skin, glands, reflexes, extremities, genitals, heart and lungs normal; enlarged full abdomen, with voluntary spasm on the right side; liver dulness from 6th rib to the umbilicus; splenic dulness normal; edge of the liver is sharpe and smooth. Urine negative. Blood showed hæmoglobin 75%, leucocytes 12,000, polymorphonuclears 87%, mononuclears 12%, eosinophiles 1% (500 cells counted.) Feces after salts showed amebas. Temperature normal, pulse 90: Von Pirquet skin reaction negative. In the 15 months since the case first came under observation, the area of liver dulness has somewhat increased and a marked area of fullness has appeared over the gall bladder, as though the abscess would point through the abdominal wall just under the costal margin. Operation refused. Has irregular chills and fever from time to time, but manages to do about half a man's work.

Case 2. Fetty Green, negress, age 22, native of Mecklenburg county. One sister died with tuberculosis 2 years ago.

Case had bloody flux for five months about two years ago and pain in the right side for a week during the summer of 1910. Further past history: Is married; was never pregnant; menses regular and normal. Uses alcohol and tobacco moderately. Came into the Dispensary March 14, 1911, complaining of stomach trouble, indigestion, pain in the belly after meals, nausea, dyspnœa, palpatation, flatulence, aching of legs and back. No headache and no vomiting. Duration of present illness two months. Has been coughing and losing weight for the past 6 months. Constipation, polyuria, and painful micturition complained of. Griping at stool. Normal weight in 1910 was 147 pounds. Examination: height 4 feet, 9 inches; weight 114 pounds; skin, eyes, ears, nose, pharynx, glands, reflexes, extremities normal: tongue coated, teeth poor, gums dirty. Development and nourishment fair. Heart area 7 cm., accentuated aortic second sound, pulse regular, of fair volume and tension. A few inconstant moist rales in the left lower back. Abdomen full, not tender: splenic dulness normal; liver dulness from 5th interspace to umbilicus (15cm.). Urine negative. Blood showed hæmoglobin 70%, reds 3,280,000, whites 10,400. The only stool obtained consisted entirely of cabbage and was unfit for examination.

March 3. Hæmoglobin 70%, reds 3,800,000, whites 13,200; differential count showed polymorphonuclears 34%, small mononuclears 46%, large mononuclears and transitionals 9%, eosinophiles 10%, neutrophilic myelocytes 1%, (300 cells counted). Individual reds normal in shape and size; no atypically stained nor nucleated reds. This blood picture gave us pause. March 24, Von Pirquet skin reaction negative.

April 6. Case having chills and fever (rises of temperature in the afternoon); is weak and has been in bed for two days. The blood showed a different picture; reds 4,000,000; hæmoglobin 80%; whites 19,600; polymorphonuclears 70%, small mononuclears 17%, large mononuclears and transitionals 7%,

eosinophiles 6%. No myelocytes nor nucleated reds. Individual reds normal in shape and size.

March 23—	Polymorphonuclears	3,400 in 1 cu. mm.
	Small mononuclears	4,600 in 1 cu. mm.
	Large "	900 in 1 cu. mm.
	Eosinophiles	1,000 in 1 cu. mm.
		10,000 in 1 cu. mm.
April 6—	Polymorphonuclears	14,000 in 1 cu. mm.
	Small mononuclears	3,400 in 1 cu. mm.
	Large "	1,400 in 1 cu. mm.
	Eosinophiles	1,200 in 1 cu. mm.
		20,000 in 1 cu. mm.

April 6; there has been in increase of 10,000 while blood cells per cu. mm. since the last count, and this increase consists entirely of polymorphonuclears, meaning pus somewhere, presumably in the enlarged liver. Refuses operation.

July 4. Case is now trying to work; complains that the veins in her arms and legs swell so in the evening that she can hardly get about. Pain in the right side caused her to lie down in the street the other day. Coughs still but says there is no sputum. Weight 109.5 pounds. Temperature 99.4; pulse 120. Hæmoglobin 70%, reds 4,600,000, whites 10,800; polys 55%, smalls 33%, large and transitionals 5%, eosinpohiles 7%. Has not menstruated since February: great weakness: pains all down right side, in arm, shoulder, and leg; has drenching night sweats. Last week her stools were nothing but a little pus and blood and very painful. Liver dulness starts in 4th interspace and extends for 16 cm. A few scattered moist rales in the left lower back. Right lower back less resonant than left.

It has been my experience that liver abscess is frequently met with here in Charlotte: this is but natural considering the prevalence of amebic dysentery here. Dr. T. R. Bogers[1] before the Tri-State Medical Association in Charlotte in 1908, quoted the

statistics of two New Orleans hospitals for a period of six years, 166 cases of hepatic abscess, and concluded that a large majority of these must have been amebic. In the last three years I have seen six such abscesses. Certainly over 90% of enlarged livers in this lattitude contain amebic abscesses.

There is an excellent symposium on the subject in the India Medical Gazette for September 1910. In India, as in this country, the consent of the dark-skin races to operation is not easy to obtain. They have resorted to aspiration, followed by the injection of about two ounces of a 5% bi-hydrochlorate solution, with not quite half as good results[2].

It has been my experience that unless these abscesses are so opened that there is perfect drainage from the bottom, or very near the bottom, they will not heal. In dressing a gangrenous area around the opening of an abscess recently, I observed that the picric acid solution being used seemed to penetrate the very thick purulent discharge more readily than anything else I had tried. Under the miscroscope, picric acid penetrates the ameba and precipitates the nucleoprotein of the nuclear membrane, bringing it into sharp relief, and of course killing the organism. It is possible that in the future this acid may prove useful as a local application to the walls of the abscess cavity.

There is one stage of this disease which I believe has not been recognized in this country—namely, the pre-supperative stage. Col. Leonard Rogers[3], of the British Army, in India, describes the pre-suppurative stage of amebic abscess, or amebic hepatitis, as one of the common causes of continued fever in that country. I have the record of one case of acute amebic dysentery with a continuous temperature and considerable tenderness under the right costal margin; both the tenderness and the temperature subsided within a few days under the use of ipecac. I now believe that in this case I was dealing with the pre-suppurative stage of liver abscess, although it was unrecognized at the time. It would seem that we will have to add this also to our causes of continued fever here in Carolina.

Rogers claims that ipecac in amebic hepatitis will prevent suppuration, and he further insists that all cases of actual abscess of the liver, whatever the treatment, or whatever the stage of the malady, shall be at once put on ipecac.

After failing to get results with ipecac, because of its improper administration, and in the meantime having tried but without success most of the other methods of treatment recommended, I have returned to the use of ipecac, given after the manner recommended by Brem[4], and now believe that a fair proportion of my cases are making recoveries.

"Abscess of the Liver," Dr. Wm. Allen.

Dr. Nisbet: To those who make a microscopical examination of the stools, one trouble we find is this: The amœba coli and the ameba dysenteriæ look alike, and the difficult point is to differentiate between the two. The text books will give you a differentiation which looks very clear, but when brought to the microscopical test it is a different matter. Some claim by waiting for a number of hours the amœba coli become more rounded and encyst and by this method we may be able to distinguish between the two. But when you first discover them in the stools, what are you going to do? Are you going to give every case ipecac, even when they do not show the typical clinical symptoms? Are we going to wait for these symptoms to develop or clear out of the intestinal tract and take chances on its being what form it may? That is the clinical point we have to consider in handling these cases. It is a matter of choice, and while some may differ with me,

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References:

1. Boggs, T. R.—Trans. Tri-State Med. Asso., 1908, p. 201.
2. Stevens, Maj. C. R., I. M. S.—Indian Med. Gazette, Sept. 1910, vol. XLV. No. 9, p. 349.
3. Rogers, Col. Leonard—"Fevers in the Tropics," 2nd ed.
4. Brem, W.—Amer. Jour. Med. Sc., vol. CXL, No. 5, (Nov. 1910), p. 669-683.

my course has been, in these cases, to go ahead and give the ipecac treatment with presence of the amœba in the stools; I am afraid to take chances on its being amœba coli, and do not wait for the typical dysentery symptoms.

In a report from the Philippine Islands an observer mentions 65 cases showing amœba. Thirty had the clinical symptoms, on examination. Within 12 months 25 of the remaining 35 cases developed true dysentery and in 18 months the remaining 10 went down with the disease. With these facts in mind I think the early administration of ipecac justified.

Dr. Long: *Mr. President*: It seems to me that the report of this case, which was not anticipated by the Society, and the discussion which Dr. Nisbet has given us, constitute a very helpful sign, because those of us older fellows like yourself and myself and Dr. Fletcher here, from Asheville, remember the days when we reported cases and did not say anything about the amœba found in stools, or the platelets and all those other things that fill up the blood current. In other words, if you catch the drift of what I am saying, there is a scientific tendency at this day and time that is hopeful. I am not surprised at that in this city, because we have come to look to Charlotte for such things, and the Society is to be congratulated upon this advancement.

I wish to say a word in regard to the treatment of dysentery with ipecac, which seems to have had its origin in India, to-wit: that Prof. Maddin at the Vanderbilt University thirty years ago taught that the best way to treat dysentery was with ipecac. I used it while doing general practice, and it is unquestionably a valuable remedy in the treatment of acute dysentery. However, I thought the remedy hastened one death within thirty-six hours after the use of ipecac. But many physicians have demonstrated its value and that long before the microscope showed the reason why it should be used.

Dr. Nisbet: One point in regard to the ipecac pills, use

the 5 to 10 gr. pills which have the uniform salol coating. If we are careful to see the pill is coated unbrokenly, it is all right, but if it is not, you are going to have a case of nausea, by its crumbling in the stomach.

Another thing, the putting on the market of the ordinary gelatine-coated pills. These seem to pass right through the intestines, so I did not attempt to use them, but have them made fresh with a uniform salol coating over the pills, and I did not get any extreme nausea from the ipecac; nor appearance in stools.

Dr. Haynes, Cliffside: *Mr. President*: I wrote to Dr. Dock to know his opinion of the ipecac treatment and he recommended it to me. I had some difficulty in getting the pills myself, and my druggist was not very successful in making them, and having had some experience in making pills myself, I finally succeeded in making some, and gave the patients 12-5 grain pills that I had prepared, and they were recovered from the stools just as they had been taken. I made them 1-8 inch thick, at first; so I made some more 1-16 inch thick, and they were very effectual.

Dr. C. M. Strong, Charlotte: My friends, Doctors Allen and Nisbet have been foolish enough to turn over some of their cases to me, surgically, and I just want to say I don't know that you all know about these liver abscesses from the surgical standpoint, and I want to tell you about some of the troubles I have had with them.

In the first place they stare you in the face and invite you to make an abdominal incision in front, but don't do it. You might make your incision there to make your diagnosis, but the two cases I had operated upon in this way were still draining a year later, and they are draining yet, if they are not dead. It is almost impossible to drain them from the front, and you get not only no drainage, but the danger of infection, and the plan that I have worked out is to go from the rear about

the eleventh rib, as a guide, approximately, near the insertion of the diaphragm, if necessary resect the eleventh rib and then work down from the diaphragm and the colon subperitoneally. Many cases point down there. In that way you reach them and get the best drainage.

Possibly other surgeons present have tried other ways, but it is my experience that when you go into the front and locate your abscess, close that up, but do not drain from the abdomen.

Dr. J. M. Templeton, Cary: *Mr. President*: It was not my purpose to say anything to you here in the general discussion, as the brethren have very kindly offered to allow me a few minutes tomorrow evening, but as the discussion seems to be lagging I hope you will pardon me if I talk a little bit before the appointed time, and I want to say, as I have said before, that it is almost impossible for me to keep up with the discussion, owing to the fact that the gentlemen did not speak loud enough, and I would be tempted to yell, "Louder!" "Louder!" but for one thing. I heard an anecdote once: A Kentucky Colonel went on a visit up to Boston, after the late unpleasantness, and his late enemies treated him very kindly, showed him over the city and made his visit very pleasant, and wound up the affair with a great banquet, at which there was a great deal of talking, and the Colonel was called on, and at that time he had reached that mellow stage which all Kentucky Colonels reach sooner or later at a banquet, and he straightened himself up and said, "When you people from Boston come down to Kentucky, you will be received with true Southern hospitality." About that time somebody said, "Louder." He said, "When the angel Gabriel puts one foot upon the land, and the other foot upon the sea, and blows that trump that shall wake the quick and the dead, there will be some darn fool from Boston yelling 'Louder!' 'Louder!'"

But I have been a little interested in this discussion tonight and I am surprised that the whole discussion has been

confined to ipecac. That was in use thirty years ago. They didn't know anything about salol-coating in those days. I was not afraid of it, but the patients got disgusted with it and I quit it long ago.

Now heretofore when I have had such cases on hand—and I had one last winter—I tried the irrigation of the lower bowel, and I tell you gentlemen, some times you can cure cases with irrigation alone, and I believe I cured one case with coal oil. That is a very common remedy. I believe coal oil will sometimes cure amœbic dysentery. Of course that is perhaps where the infection does not extend very far up in the bowel.

I want to say in regard to this case I had last winter, the patient came to me and said she had taken ipecac until the very name nauseated her, until she didn't want to hear it any more. So I tried all kinds of irrigation and then told her she had better see a specialist. Finally she fell into the hands of Dr. Allen and he cured with ipecac, and while I have been using irrigation, after this I am going to use ipecac with the salol coating, as has been recommended.

Another thing that wasn't brought out: Appendicostomy. I have never seen a case treated that way, but it was recommended two or three years ago. Such men as James M. Anders of Philadelphia, speak very highly of it.

But I just throw out these ideas, and I am merely talking to fill up the time.

Dr. Nisbet: *Mr. President*: Dr. Allen had two cases here, a few minutes ago, of abscess of the liver. One has unfortunately gone, and as Dr. Allen is familiar with the cases, I think it would be better if he would present them.

The President calls for oral remarks from members, presenting cases of interest occuring during the year.

Dr. Long: *Mr. President*: If Dr. Nisbet and the other gentlemen of Charlotte will exhibit their cases of abscess of the liver, and give us a history of the same, we will be much pleased to have them do so.

A STUDY OF THE MORTUARY STATISTICS OF NORTH CAROLINA FOR THE YEAR 1910; AND SOME REMARKS AS TO THE RELATION OF THE DOCTOR TO PUBLIC HEALTH AS REGARDS TUBERCULOSIS.

THOS. M. JORDAN, M.D., RALEIGH.

Mr. President and Fellow Doctors:

Whether our distinguished President, who while he sits in his place before you, displaying his youthful face and raven locks, would like for me to say so or not, I must tell you, that both of us have been attending upon these meetings now for thirty-one years; that in both the 19th and 20th centuries we have been here, and speaking for myself, I wish to say, that in all that time I have never felt before that I knew anything that you did not know that was important enough to ask you to listen to me. But now I believe in my heart, yea I feel it in my soul, that I have a message so important that I not only feel that I should tell it to you, but I would proclaim it from the housetops to our people, until I might arouse them in behalf of public health; that they might awake and betake themselves to the warfare that they must wage, or they and their loved ones will be stolen away by an enemy who walks among them both night and day, and who never sleeps, and who because his deeds are evil prefers darkness to light. Gentlemen, the title of my paper is a little different from that published in the program and reads as follows:

It is pardonable pride if I claim for North Carolina doctors that they are in the van of progress, moral and intellectual, as well as all elements entering into a high life in keeping with a professional calling. Upon such progress true superiority and leadership are dependent. Some physicians believe that we have attained them; others, less optimistic and perhaps

wiser, believe that we are still endeavoring to attain them. The former opinion might be termed the assumption of the majority; the latter the ambition of the minority.

The initiation and direction of any movement, therefore, making for greater achievements by the profession, as well as for the judicious development and extension of those already inaugurated, will devolve upon the minority. To you, therefore, representing this invaluable minority, I would present some thoughts coming to my mind after a study of the mortuary statistics of our State for the year 1910 upon what I think is the very greatest problem before, not only our profession, but the whole world if you will, but directing your attention to what is nearest to us, our duty in our own State in regard to the greatest enemy of mankind; an enemy causing the death of more of our people than all other communicable diseases combined.

An enemy that left 845 fatherless homes in North Carolina in a year.

An enemy that left 1,205 motherless homes in North Carolina in a year.

An enemy that left 355 homes without parents in North Carolina in a year.

An enemy that made 1,420 orphans in North Carolina in a year.

The greatest question for our consideration is, shall we submit to or conquer this archenemy of our race? And considering this great question, the relation of the physician to public health, as regards tuberculosis, presents itself for thought.

From the beginning the relation of the doctor to public health in general has been an established fact, for to none other than to the medical profession is due the credit for all the present laws we have bearing upon public health.

The status of the doctor now toward tuberculosis is not what it formerly was, for the doctor has had another thought

coming to him as to the nature of the disease and consequently altering his relation to public health in regard to it; yet there has been no alteration in our public health laws in regard to tuberculosis. It is still within the memory of man when the teaching as to tuberculosis was that it was an inherited and not a communicable disease. Now it has been more certainly proven that tuberculosis is communicable, than has been admitted that it is not inherited; but there has been no enactment of law in regard to it, tending to prevent its spread as in scarlet fever, small pox and diphtheria, except the one instance of requiring fumigation of premises after death or removal, and by some municipalities requiring a report to the authorities of its presence in the community. It is not claimed that tuberculosis is so viciously contagious as are the diseases mentioned, or that the same quarantine that is applicable in these would or could be applied successfully in tuberculosis; nevertheless there can be no defense of the "stand pat" attitude in regard to the latter, for as a destroyer of human life and happiness, placing tuberculosis against the whole list of contagious diseases, it leads so far that there is complete forgetfulness as to others.

In 1910 we lost in North Carolina by death from whooping cough 230.

In 1910 we lost in North Carolina by death from measles 200.

In 1910 we lost in North Carolina by death from diphtheria 265.

In 1910 we lost in North Carolina by death from small pox 5.

In 1910 we lost in North Carolina by death from typhiod fever 1,110.

In 1910 we lost in North Carolina by death from tuberculosis 4,690.

From all preventable diseases, 6,500 people. Estimating the property value of a human life at even two thousand dollars and our State is losing annually in dollars and cents

from preventable diseases Thirteen Million Dollars, but Nine Million Three Hundred and Eighty Thousand Dollars of that amount will be due to tuberculosis. It is over twenty times as destructive to life as whooping cough and measles, nearly twenty times as destructive as diphtheria, each one public health lays its preventive hand upon. Now, when I tell you that tuberculosis is nine hundred and forty times as destructive to life as small pox upon which so much stress has been laid by our profession and the laity, will you not ask yourselves the question, "Why am I idle as to some measure to prevent the spread of this terrible malady?"

And again I ask why the exception, or why there has been no public health enactment treating tuberculosis as other disease that we know are not easier prevented than tuberculosis? Is the profession to blame? If so, is it because we are still treading the same pathway we made in regard to public health when we regarded tuberculosis as an inherited disease only, and incurable, and when, because it was so regarded, it was considered cruel to inflict upon, as we thought them, the already doomed, the information that offered no hope whatever, and left to him only the regret that he had not been born of parents whose blood did not float tubercle bacilli?

Perish the thought that, for any reason of self interests, either of the physician or his patron, the relation of the profession to public health as regards tuberculosis can be explained; yet it is no great stretch of imagination to picture such a reason for the relation.

The admitted fact now by the profession that tuberculosis can be cured under proper surroundings and circumstances, if taken in time, and the widely advertised sanatoriums, and cock-sure cure specialists, that are calculated to take patronage from the regular physician, who know full well that he can do his patient quite as much good as he can receive elsewhere, may make the physician slow to inform his patron of his real condition, feeling sure that if he should do so, more than

likely he not only would lose patronage, but most surely reputation with his former patron and his friends, because what we hear on the return of such cases if not cured is that the regular family physician did not send the patient in time, or kept him at home too long. Bearing upon this phase of the case, I may be pardoned for reciting a couple of my own experiences. Some years ago, I was requested by the proprietors of a large firm serving the public to examine and report upon an employee, as to whether he was tuberculous. The examination confirmed suspicion. It devolved upon me to inform him of the findings. I advised with him as to the best course to pursue, giving any hope of recovery. Of course, he lost his job with the firm. I also lost his patronage, and he took the aconite electric cure with a specialist just come to town, but his ticket read death from tuberculosis on the health records a few months later. A year or so ago a gentleman whom I had been for some time the family physician of, developed tuberculosis. His occupation brought him in daily contact with the traveling public. I felt called upon to break the sad news to him, and advised him as to his relation to the public and his family, and explained to him the means that promised most for his recovery. Instead of following my advice, he went visiting to return and place himself in the hands of a consumptive specialist, who I have since been told, said to him, that as soon as he could cure him of the fever his doctor had allowed him to walk about with so long, all would be well with him. He has been relieved of the fever, and I trust it is well with him, if not the "well" he was lead to expect. Whether the conditions or facts mentioned are the causes for the relation of the physician to public health as regards tuberculosis or not, the fact must be admitted, that either for those or for some others, the profession by a large majority is maintaining the speak easy attitude in regard to tuberculosis it maintained when we thought differently about it. We cannot claim that we don't know now. We can know

if we will. The State has provided free examination of all suspected sputum and the "I am not certain" argument can not justify the profession in failure to announce the presence of a disease in the community dangerous to public health.

We either have convictions upon the subject or we don't; having them, we should without hesitation, act, regardless, or we should not profess to be our brother's keeper, when we are not. If the phagocytes of our professional life and brotherhood are not strong enough to protect us against the siren songs of the make-believe, who claim to cure them by their quirks other than rational treatment, let us inject the lymph of professional restoration by enlisting in a common cause in behalf of public health, and deserve credit for what we have done by doing greater things in behalf of public health in regard to tuberculosis. Whether we lead the van or not, the law will be enacted and we should take our proper place at the head of the movement. Let the profession cut the pattern for the law, for any law to be successful in execution will depend upon the profession. If the profession were required to make public announcement of tuberculosis, as in other contagious and infectious disease, in my opinion a great step forward would be taken toward the education of the public as to the real nature of the disease and its management and treatment, and once this is known, the advice of one reputable physician will be worth as much as another, there are no obscure methods in its management or treatment, the diagnosis being certain. If I read the signs of the times correctly, our profession has no time to lose in taking a step forward now in regard to this particular matter, for the layman is interested in this matter as never before; and at no distant day there will be legislation along this line, and by right I think the medical profession owes it to itself, to its profession and former attitude toward public health legislation, to be in the front rank instead of the rear in such a movement and claim the credit for leading the fight. The

reason we have no such law now is because the profession has been derelict to duty in not demanding the passage of same. While I do not feel myself competent to provide the proper machinery for such a humane undertaking, it occurs to me that physicians should be required to make public announcement by placard or some other form of notice the location of every case of consumption.

To ever successfully combat tuberculosis, some similar notoriety and management as is used in small-pox and other contagious diseases must be adopted for the migratory consumptives. If a case of small-pox should come to your town the entire community would stand as one man for his isolation; put him in the pest house, burn his belongings. The community will stand for anything to handle small-pox, even for taxation to support quarantine, which if it does anything helps to spread the disease by offering a false protection to the individual and prevent his vaccination. We should regard the incoming consumptive with a great deal more fear, and notice of his coming should be given by health authorities from whence he came as is done in small-pox. When a State law requiring this is upon our statute books with proper penalty, physicians will no longer hesitate to report the cases coming before them. The same will act well upon the patient in that he will know that one doctor will report him as quickly as another, and that there will be no escape from the publicity. There will be two classes of patients to deal with, the indigent and the self-sustaining patient. Both must be handled to succeed in the eradication of the disease. The man that can not provide for himself, must be provided for by the State, and to do so, a home, hospital or sanitarium must be prepared and the indigent required to go. The self-sustaining patient must be properly instructed as to how he shall conduct himself to prevent the spread of the disease, and should he prove rebellious or neglectful of or to the instruction given him for the prevention of the spread of the disease,

then upon conviction, through the process of law, as a punishment for his offense, he should be subjected to the same restraint in the same home with the indigent. But the question arises, is the State able to make such provision? It is paying a greater tax by loss from this disease, than it would take, in my opinion, to provide for it as proposed. The annual loss to the State now by death, placing the value of a human life at even one thousand dollars each, would lose the State in round numbers nearly five million dollars annually. And even at so low an estimate of a human life as $1,000 each, the loss from one disease alone to our State is a greater tax than that levied for municipal, county and State purposes combined, annually. Add to this the time lost by other members of the family in nursing and caring for the sick, and as a business proposition that our State take steps to prevent it is unanswerable, not to mention the State's duty to its citizenship.

If the value of a State is dependent upon its citizenship, and who would be so ignorant as to deny this proposition, then any amount expended for a better, healthier, happier citizenship will be worth while. Whatever part our profession shall act in bringing to pass of such most to be desired conditions, will redound to its everlasting glory and praise.

"The Study of Mortuary Statistics of North Carolina for the year 1910, and some Remarks as to the Relation of the Doctor to Public Health, as regards Tuberculosis." Dr. Thomas M. Jordan, Raleigh.

Dr. C. A. Julian, Thomasville: *Mr. President*: I think, Sir, that Dr. Jordan's paper is one of the most timely that we have had.

He certainly struck the keynote in regard to reporting cases of tuberculosis. The law today of fumigation of houses of tubercular patients is absolutely useless without a law making it obligatory to report every case of tuberculosis. An enemy,

to be routed, has first to be located. Any physician who knows anything at all about physical diagnosis, who is capable of knowing tuberculosis, should be required by the municipality, by the county and by the State to report the case to his superior officer.

I take issue with Dr. Jordan in regard to making public the fact of cases of tuberculosis. I believe that those cases should be reported in private and that the health officer should be compelled to furnish the tubercular homes with health instructions and make them carry out the instructions in detail.

If we would make it a public matter, if we placarded every case of tuberculosis, we would create a fear that is entirely unnecessary, because we know there is no danger from a clean consumptive. It is not like cases of scarlet fever or of small-pox, where contact gives this disease, but it is long contact with the excreta from the patient—the sputum and the feces. So I think today that we should demand a law requiring every doctor in North Carolina to report every case of tuberculosis, and that every case of tuberculosis should be cared for, where they are not able to care for themselves.

I believe that a county hospital for indigent consumptives should be established at the county home, on the premises of every county in our State, and where the patient is a menace to his family and the community he should be compelled to go to that institution. The wealthy should care for themselves. It is North Carolina's duty to care for her indigent consumptives.

Dr. Jordan closes: I just want to answer Dr. Julian's criticism. Gentlemen, if I had any reason in the world for writing my paper, it was to bring about a discussion of the subject, and to show you what I don't think many of you are perhaps familiar with,—the statistics of North Carolina as recent as 1910.

I am sorry that it has not provoked more discussion than it has, and yet in regard to what Dr. Julian says in taking

issue with me—I am not stickling for my way of doing the thing at all, but I am in earnest about doing something.

Now he says he is opposed to making public this disease as we do other things. That proves that Dr. Julian has that speak-easy attitude that we have had all the time about tuberculosis. I want to say to you it is no disgrace to have tuberculosis, it is a misfortune, and there is not a man in this audience who would like to be placarded for small-pox, and I never did see one that liked to be placarded for scarlet fever. Now his own argument proves it is wrong not to make public this thing, because he says, "before you fight an enemy you must locate him, and it is a matter of education before we can accomplish this thing at all, and it is the people we want to educate." He thinks it is only necessary for physicians and health officers to know. We doctors and health officers may know what we please, in private, but we want to put on guard the layman. If it is education we are after, why not educate as we do in small-pox? The layman has just as much right to know where consumption is as he has where small-pox is, because where small-pox has killed one man in North Carolina, in 1910, tuberculosis has killed him 940 times, or 940 times as many. Why shouldn't we put him on guard? There were, in round numbers, 4,700 deaths from tuberculosis and only five from small-pox.

Dr. Julian: *Mr. President*: I do not say that we should not expose these cases, but there is an exaggerated fear of tuberculous people. Today you will not admit them into your private hospitals, your hotels, your traveling places; and there is no danger from tuberculosis, as I said before, when proper care has been had in those homes, and if a private report has been made on those cases and the law is followed to the letter, and the doctor and the patient do their duty, the patient is not a menace and does not require a card sticking up outside his door advertising the fact that he has tuberculosis. The community passing by does not get it, nor the man who stops in,

does not get it, but it is the wife of the man, the child nursing at the mother's breast, who does not inherit it but takes it from the breast.

If you clear that home and make it clean, it is not a menace and does not require a placard telling the public about tuberculosis being in that home; and after the patient dies or recovers, the home should be properly treated.

"SCHOOL HYGIENE AND SANITATION."

WM. S. JORDAN, M.D., FAYETTEVILLE.

Mr. President, Ladies and Gentlemen: If there is anything for which this generation should feel a special pride it is the higher valuation that is placed on human life. The conservation of that greatest of all natural resources, health, is becoming the chief concern not only of the people as a whole in a general way, but of the medical profession from the standpoint of science, and it is well that this is so, for by training and experience the doctor is the only man fully qualified to direct and train the people in matters that have as their aim the preservation of health and the prevention of disease. If it has been the endeavor of the medical profession in the past to cure disease its usefulness to humanity will be multiplied many times for its efforts directed toward the preservation and maintanance of health and the prevention of disease. We hear a great deal of late concerning "efficiency." The reason is that as we look about we see and realize the great waste that is going on as the result of remediable causes and it is our desire to save to the state and nation useful citizens, who are lost simply because we do not put into practice rules and regulations that should govern our lives and our habits, that this demand for efficiency is beginning to receive the attention it deserves.

There are so many phases of the subject that could be discussed that one is simply overwhelmed as he tries to comprehend them. To cover the ground completely we have not only to consider school hygiene and sanitation, but the hygiene and sanitation of the home, the hygiene of infancy and childhood, dietetic hygiene, out-of-school hygiene, municipal hygiene with reference to children, hygiene with reference to physical and mental defects, the hygiene and sanitation of

towns and communities, the hygiene of traffic, industrial and occupational hygiene, the control of infectious and contagious diseases, hygiene of the State and nation, etc., etc. You will gather from such an outline the numerous phases to be considered, and more than that the professional man who is endeavoring to interest himself in public health work is confronted with the serious difficulty, if he is to accomplish the good he sets out to accomplish, of putting these matters in terms easy of comprehension and understanding by the laity, avoiding technical phrases, for otherwise interest lags and our purpose fails.

North Carolina has a right to feel proud of the interest that is being developed along the line of public health work and she will not be far behind other states of the nation in placing a proper value on the lives of her citizens by the expenditure of effort for the preservation of health and the prevention of disease. Organized society has accomplished much in some of the larger cities of the nation in the way of medical inspection of schools, the correction of physical defects of school children, the employment of school physicians, school nurses, the operation of special schools for mental defectives, instruction of parents through school physicians, etc., etc. The scope of this work deserves state-wide attention as the unit, because to accomplish much by these endeavors close organization is necessary, for after all we are but one big family and if we do not practice the principles of hygiene and sanitation alike everywhere our time will be wasted and our efforts in a good cause fail.

From a professional standpoint if we were asked to state the true and ultimate object of school hygiene and sanitation we would answer that it is to safeguard the health of the pupils and to improve their physical and mental conditions by removing those defects that interfere with the child obtaining a normal education with comfort. Let us use this principle as a basis for our plan. Applying this plan to a consideration

of school hygiene and sanitation an outline of the topics for discussion would be a consideration of the personal hygiene of the student, the conditions of his health, his habits, the amount of work he can and should do, the sanitary environments and requirements of the school-room and building, the furniture, the ventilation and heating, and the influence of all these upon the individual's state and development.

We know that the best time for the attainment of any knowledge is in the years of childhood, for then it is that the whole organism, mentally and physically, is growing and developing, and it yields readily to both external and internal impressions and forces. If the growing period is the proper time for the attainment of mental culture it is the proper time for the practice of physical culture, from what has been gained when a highly developed mind must be allowed to perish because the physical welfare of the indivdual has not been preserved and is destined to premature death? "A sound mind in a sound body," is the goal, which coupled with a knowledge that will preserve health, for health is more easily retained than regained, we are reaching out to a higher state of civilization than has ever yet been attained, and we are making the children of today capable of accomplishing greater things in their years of service, to those that are to follow, than we shall ever be able to do.

As the years go by the feeling of responsibility by the people for the preservation of health and the prevention of disease continually grows and more rapid strides will be made in the future than have been made in the past for the reason that the application of these principles is forced by public sentiment, and since an enlightened public sentiment is becoming all the time more general, as the result of this campaign of health, we can only surmise what the future holds in store.

In discussing such a subject as school hygiene and sanita-

tion the great influence of all those circumstances and conditions common to school life can be readily understood. The child is subject to these conditions for fully half his period of development, if he gets the number of years of schooling to which he is entitled. The importance of a knowledge of school hygiene is therefore seen to be essential, for it concerns the parent, the physician, and the citizen. I suggest that it is a matter of concern to the physician because it is true that he has to treat many disturbances of health in children that have their origin in the harmful or insanitary conditions found at school. Certain kinds of illnesses would affect children, whether in school or out. Other disturbances of function are especially influenced by school life.

Overwork in children with lowered vitality, may produce such disorders as dyspepsia, headaches, nervous derangements, St. Vitus's dance, epilepsy, backaches, disorders of menstruation, and (especially I would add) consumption. Worry in an ambitious child, over coming examinations has a material effect very often on the nervous temperament and this is especially true of examinations that come at the end of the term, as in the spring when the students are worn out and debilitated. To suggest a remedy for this condition I believe that it would be better if teachers would grade more by the work and attendance during the term and less on final examinations. In this way, instead of forcing the children at the end of the term, the same amount of work throughout the term would be seen not to exceed the capacity of the students.

Bad arrangements of seats and desks, improper location of windows, blackboards, etc., may cause spinal curvatures and other physical deformities and defective eye-sight. Some one has said, "Movement is a child's way of resting, rest is a kind of work, to be taught by degrees." That being the case no seats could be devised that would make a child maintain the correct or "normal" position for any but a short time. The backs of the seats should give support to the lower part

of the spine rather than to the shoulders and upper part of the spine. The seat should be long enough to support the whole thigh. The edge of the desk should come up to or just overlap the edge of the seat, and should be just high enough so that the elbows hanging freely would be only just below the level of the lid. For near-sighted children a higher desk is necessary in writing. The windows should be high and on two sides of the school room and the desks so placed that the light falls at the back and to the left of the scholar, which gives the best light, with the least eye-strain, for either reading or writing. When the light falls in front the continuous glare is very trying and injurious to the eye-sight.

The blackboards should be placed at the ends of the room where there are no windows and should have a dead-black surface; not a glossy one.

For the restful effect on the eyes the walls should be tinted, not glaringly white.

The children of the primary department should not be kept in school for too many hours in the day, nor should parents think that school is the place to send children to keep them out of mischief and out of the way. A child in the beginning of its school-life does not have the power of concentration of older children and can only think of any kind of work or play for a few minutes at a time. Consequently, small children should have short lessons and frequent recesses.

In all children the obtaining of good health and a sound constitution is of first importance. This is the time for gaining health; not losing it; for building up sound bodies and constitutions, not breaking them down, and school life should always have the former as one of its greatest aims.

Indigestion is often seen during the school months because the children have irregular meal hours, go without breakfast or eat hastily without properly chewing their food in order to keep from being tardy, or suffer loss of appetite because of lack of fresh air and proper exercise, etc., etc.

Headache is very common in school children, and may be due to any one or more of several causes, such as overwork, indigestion, bad air, eye-strain, etc. The eyes should be examined if headaches persist and defects corrected by proper glasses.

Where there are children in school subject to St. Vitus's dance, or epilepsy the school committee should be notified and have them stopped, not only for their own sakes, but also for the sake of the other children, who might be unduly affected by their nervous manifestations. Such children should be educated quietly and cautiously, or not at all, with plenty of outdoor life.

Menstrual disorders are common in school girls that are being over-worked mentally, and as this is the time for the development of this function the system is undergoing a heavy strain, and often rest from customary work is required at the time of the periodical recurrence. Therefore excuses for absence at such times should be freely granted. Remember that "girls get through as much work as boys, working in their own way."

As regards exercise it may be stated that every public school teacher should have knowledge of proper systems and methods of physical culture in order that the best plan may be chosen for any particular school, different classes of children, according to age and sex, etc., etc. The rule with country schools is that the children usually walk to and from school and in that way fulfill the requirements for health. Physical exercise increases the capacity of the lungs and the breathing power, strengthens the heart and circulation, invigorates the brain and nerve-centres, improves digestion and nutrition, makes the muscles more powerful and increases the capacity for endurance. Consequently, such exercise helps one to resist disease, because by increasing the activity of all the tissues and organs waste materials are carried off; glands and organs are kept

at work and healthy, and active, vigorous tissues take the place of weak and sluggish ones.

It should be the rule to require every person in the room to get out-of-doors for a few minutes at least at every re--cess, unless the weather is very inclement and to open the windows for a short time to allow a draught of fresh air to sweep in and replace the foul.

The construction of school-houses should be after the most approved modern methods in the hands of men conversant with present day requirements as regards ventilation, heating, water supply, etc. The scope of such a paper as this will not admit of discussion in detail of these matters, suffice it to say that the school room should never be allowed to become stuffy and close, in which case the students become dull, suffer with headaches, and are made very susceptible to taking colds, they lose their appetites, become listless, suffer with constipation, and lose all desire or inclination to take a proper amount of exercise.

The source of the water supply of the school should be known to be pure and this fact can be easily established by sending a specimen to the State Laboratory of Hygiene for analysis.

As regards the public drinking cup I will state that it is an easy matter to condemn it, but a hard one to abandon it. If we always had the ideal condition prevailing where none but healthy and cleanly children attended school the public drinking cup would not be the terror that it is pictured. Since such a condition is impossible it would not be a bad plan for the teachers to go a little further than teaching the pupil merely, but explain to the parents the dangers that lurk in the public drinking cup and the necessity for precautions against it, and advise them to provide individual drinking cups for their children.

As a concluding suggestion I want to say that I believe one of the greatest and most important safe-guards to health

would be the use by every school within the borders of our State, where sewerage is not available, of the sanitary privy. Not only would it serve its purpose in preventing disease, but by its use every child would be made to understand the reasons for its existence. At the beginning of each school year a short time should be given to a full explanation of its office and the purpose it is to serve. In this way we will impart to the receptive mind of the child sanitary knowledge the benefits of which his parents never enjoyed.

In all matters that pertain to the preservation of health and the prevention of disease let us look forward to the time in North Carolina when we will have school-physicians, school-nurses, and public health servants who are capable of applying, with the help of the strong arm of the law to back them up, our existing knowledge of hygiene and sanitation to our living conditions, and in making our State an example by which others may pattern.

Conjoint Session State Board of Health With the State Medical Society.

DR. G. G. THOMAS, *President, in the Chair.*

DR. THOMAS: The conjoint session of the State Board of Health with the North Carolina Medical Society will now come to order.

DR. RANKIN: *Mr. President and Gentlemen*: With this meeting of the Society two of the terms of the members of the State Board of Health expire, and there are now two vacancies on the State Board of Health that the law provides shall be filled by the members of this Society. This is one of the most important matters before us and I suppose should be taken up at once.

DR. THOMAS: I will ask that nominations be made to fill thes two vacancies that occur in the State Board of Health.

DR. LAUGHINGHOUSE: *Mr. President*: Do I understand you to say that nominations on the State Board of Health are now in order?

DR. THOMAS: Yes, Sir. The idea is that this should take place immediately.

DR. LAUGHINGHOUSE: The State Board of Health in North Carolina, representing conjointly the State of North Carolina and this organized Society, organized not many years ago, has been watched by us with interest and satisfaction, as it has accomplished great things. Not only has it met the expectations of the profession in North Carolina, but business men, educators, and legislators have had it impressed upon their attention enough to listen to and abide by and assist this organization with their brains and with their money. Such an organization as the State Board of Health, as it is today, strikes me as being one that could be considered as among the State's great assets. It is for this reason, Mr. Chairman, that

to my mind the filling of the positions on this Board should be gone at in a very careful manner. We need men on this Board not only of intelligence but of experience; men who can serve the State of North Carolina and the profession and sanitation in every capacity, and men who will be found in no way wanting.

I have in mind a man who by experience, education, ability, and because of the fact that he is associated with interests in North Carolina that carry him here and there through the State, and because of the fact that he has long given splendid service to the State and to the Board, I believe will be, of all men, the proper man for this place. Without regard to personal friendship, without regard to the paying off of any past obligation, without regard to anything except the good of the State Board of Health and the profession of North Carolina, and North Carolina's people, I place before you the name of Dr. George G. Thomas. (Applause.)

Dr. Mann: *Mr. Chairman*: The speaker who has just preceded me has very well covered the ground. I am not, and never will be, the equal in oratory of Dr. Laughinghouse, but I would like to second the nomination of Dr. Thomas to succeed himself on the Board of Health. (Applause.)

Dr. A. H. Moore: *Mr. Chairman*: Please allow the County of Pamlico, situated in the remotest section of North Carolina, to state to this intelligent assembly of men that we are not unmindful of the advantages of Dr. Thomas, and therefore I wish to second most heartily Dr. Laughinghouse's nomination of Dr. Thomas.

Dr. R. J. Noble: I wish to second the nomination of Dr. Thomas.

Dr. McBrayer: Of all the foremost men, men of culture, refinement of intellect, and of character, we have no man in the medical profession of North Carolina that exceeds my good friend, Dr. Thomas. He is a gentleman of the old school;

he is a Southern gentleman—and that leaves nothing more to be said.

I was attending Dr. Mayo's clinic on one occasion, and you know things are a little crowded in there, and the noted gentlemen, with all their dignity, were jamming each other to get a little better place to see. I got back in the rear and when I got in the operating room I couldn't see a thing. Some of the gentlemen laughed and said: "You will get over that in a little while." They have a monitor or reporter who goes first, and he is to report the operations, and at the meeting in the afternoon he is to open the discussion. No one is allowed to get in front of him. It happened that upon this occasion there were two or three ladies. One was connected with a hospital in Chicago; they were all of note, but these dignified surgeons from all over the United States, who were the personification of dignity at home, paid no attention to the ladies. They shoved them back and got good places. It happened to come my turn one day and I put the ladies in front of me and let them march in and get good seats, and some one remarked: "He is a ladies' man." I said: "He is a Southern gentleman." (Applause.)

Dr. Thomas is a Southern gentleman, and fortunately the Southern gentleman is not decreasing but is increasing in the South and in North Carolina in ratio without population, and may it always be so, but the peculiar type of Southern gentleman before the war is decreasing. Dr. Thomas is a before-the-war Southern gentleman. He has done an immense amount of work to uphold the dignity and advance the interests of the medical profession in North Carolina, and when I say that I mean that he has done an equal amount of good and of benefit to the people of North Crolina, because those are synonymous terms.

This Society has tried to honor Dr. Thomas, and well it should have. Way back yonder—not so long ago, of course, but before I began to attend the sessions of this Society—

the Doctor had all the minor offices—that he would call minor offices now; some of us think they are of great magnitude—but he was Essayist, Orator, Vice-President, etc., and later was elected on the Board of Medical Examiners, when that was in its formative state, so to speak; and he made history for our State, of which we are all proud. Later he was exalted to the honorable position of President of this Society—probably the highest honor in North Carolina, excepting none. Later—some 21 years ago or more—he was placed upon this Board of Health of North Carolina, which position he has held for all these years. He succeeded, I believe, to the Presidency of the State Board of Health, the late Doctor West—another honored name in North Carolina medical circles, and he has succeeded him with honor. He, too, has done an immense amount of work on the State Board of Health, of which he may feel justly proud, and of which the medical profession of North Carolina and the people of North Carolina feel justly proud.

He has had all these honors. He has had every honor that the State Medical Society of North Carolina could heap upon him. If there were any honors left, I would be in favor of piling them upon his head until they reached as high as the summit of Mount Pisgah, or the summit of the tower of Babel, and there is nothing too good for him; but it seems to me that while he has done a great work, while he has been in the harness for lo, these many years, while he has been ever in the vanguard of progress, in medicine and in public health, worked for nearly half a century, that it is not fair to him that we should impose upon him the burden and heat of the day forever. The public health work in North Carolina is no farmer's dream, if you will excuse the expression. We are up against it. It means work. Back yonder twenty years ago there was not very much to do. It was just as important as it is today. It was necessary to look into the future with the prophetic vision and see what was coming and plan for it and

work to it and lead and educate the people just as we are doing today, but today the health work in North Carolina, in the South, and in the United States, is a hurricane. It is proceeding with the force of an avalanche, and I feel that the young men of North Carolina should throw themselves in the breach and bear the burdens of this work.

In thinking of that my mind wanders back to the days when another leading character in medicine and in the history of our State attended our meetings, a man who was as lovable, who had a great influence, whose life is an important part of the history of medicine in North Carolina, which must needs be, and is, a history of North Carolina. I refer to the late lamented, the distinguished O'Hagan. He was the same leader, the same gentleman, the same scholar. He worked hand in hand with our lovable and much loved Dr. Thomas, but as I have said, it seems to me that while we will continue as long as life lasts to bestow all the honors possible upon Dr. Thomas and his colleagues, it does seem that we ought to relieve them of the burdens of the day, as we would in any other walk of life; and in thinking of that, me thinks one can see the mantle of our late lamented Dr. O'Hagan, even as the mantle of Elija fell upon the shoulders of Elisha, fall upon the shoulders of one of the noble young sons of North Carolina. He is educated, competent, able and beloved; he has the courage of his convictions; he, too, is a gentleman in every sense of the word, and he comes by all these traits honestly. They are handed down, as was the mantle of Elija, from our late lamented and much loved O'Hagan, and I am quite sure that they will rest with equal grace and be worn with equal dignity by his grandson. I refer, and take pleasure in placing for this position on the State Board of Health, the grandson of our much loved and lamented Dr. O'Hagan.—Dr. Charles O'Hagan Laughinghouse. (Applause).

Dr. David Tayloe: I wish to name a man who has been a painstaking member of the Board of Health of North Caro-

lina for the past several years—I refer to Dr. Thomas E. Anderson, Statesville. (Applause).

Dr. I. W. Faison: As a member of this Society for thirty years—a man who has been in and out among the Society for that long, a man who has not gone through the long list of office holding in this Society, a man who never asked for but one position in this Society. In 1896 I did not have any better sense than to be a candidate for a member of the Board of Medical Examiners. I have been sorry from that day to this that I was fool enough to be a candidate. I will never be a candidate for any other position. But in 1896 when I was a candidate, when some men didn't come up to the scratch, as I thought they ought to have done, Dr. O'Hagan—who is dead and gone, whose memory I love—stood up like a man for me, and on that account, outside of the fact that he is a gentleman, particularly, I want to stand here and second the nomination of Dr. Laughinghouse as a member of the Board of Health. (Applause.)

Dr. Julian and Dr. R. M. Adams second nomination of Dr. Anderson.

Dr. A. J. Crowell: *Mr. President*: I listened with a great deal of pleasure to the words of Dr. Laughinghouse, to the words of Dr. McBrayer, realizing thoroughly the truthfulness of every word he said. I have known and loved Dr. Thomas ever since I have been in the medical profession, will continue to love Dr. Thomas, but Dr. Thomas has been honored, as Dr. McBrayer said, by being elected to every position that the State Society could give him; he has served us for twenty years on the State Board of Health, I understand, and I feel quite sure he would be very glad to lay this on the shoulder of some younger man. I therefore take delight in seconding the nomination of Dr. Laughinghouse.

Dr. Booth: *Mr. Chairman*: I must say, occupying a central position in the State, as I do, as my country does, having watched closely the workings of this Society, being Superin-

tendent of Health in my County, I feel like we cannot give up Dr. Thomas. We know these other men are good; we verily believe they are good; we know Dr. Thomas has won the highest honor of the profession. Now it is the profession we want to uphold. We are not trying to honor any man, particularly. It is the Board of Health of North Carolina that we want to serve—the people of North Carolina, and we hope you will permit Dr. Thomas to continue the office he now holds.

Dr. Laughinghouse: *Mr. President*: I want to express my appreciation of the kindly words that have been said concerning the memory of Dr. O'Hagan. I do not know whether it is by inheritance or by cultivation, but I was never anxious to obtain honor and distinction on the merits of another man. (Applause.) And while I feel keenly—too keenly for words to express—the appreciation that is rightfully due my grandfather, yet until the time comes for me to hold the position in this Society or even a warden's office in my little town, on account of my own personality, rather than the personality of others, I feel that I am not the proper man to hold that place.

I have been sitting here likening myself to a new potato. It seems to me, with all due respect to my grandfather, that the best part of me is in the ground.

I also wish it distinctly understood, gentlemen, that I had no idea that my name would be placed in nomination for this position. I have never accomplished an act, I have never said a word, I have never done anything by innuendo that would lead any man to believe that I was an aspirant to this position.

Gentlemen, I believe that the Medical Society of North Carolina will cement itself, strengthen itself, be an organ in the State of North Carolina that will push it forward and lift it up, when it eliminates every single solitary characteristic and thought and idea from offices in North Carolina except that of earned proficiency. (Applause.) The proficient man, the man of character, the man who is able, by a clean record and ability

to fill the place, is the man for the place, regardless of everything else. (Applause.)

Dr. J. M. Parrott: *Mr. President*: Since listening to Dr. Laughinghouse, I am glad to say the true Southern gentleman still lives. The words spoken by Dr. Laughinghouse are the words of a man. Dr. Laughinghouse does not desire, as I gather from his remarks, this position. I believe that this position is one of the most important, if not the most important, which the profession in North Carolina is called upon to fill. In this good hour, when North Carolina is stepping forward along all lines and is keeping step with the progress of the times, as Dr. McBrayer said, we have come up against it in health matters, and if we ever needed, in the history of North Carolina, the wise counsel and the splendid advice of a cool, thinking, experienced head, that hour is now, and with that purpose in view, it gives me especial pleasure to present the idea to this good body that it is extremely unwise to swap horses in the middle of a stream; therefore I second the nomination of Dr. Thomas and Dr. Anderson.

Dr. H. D. Stewart: I am in favor of going out into the field and compelling them to come in, because the most suitable people do not run for offices. These people that are forever and eternally running are not the most suitable fellows. I know enough of Dr. Thomas to know what he has done, and I don't want to give him up; and I know enough of Dr. Laughinghouse to know what he can do; therefore I want to second the nomination of Dr. Thomas and of Dr. Laughinghouse.

Dr. Thomas: I would state that there are in nomination Dr. Thomas, Dr. Laughinghouse and Dr. Anderson. I will ask you to prepare your ballots, and will ask Dr. Rose, Dr. Parrott and Dr. Young to act as tellers.

Dr. Adams: As Dr. Anderson has no opposition, I move that his nomination be closed by acclamation.

Dr. Thomas: I don't know how you will do that gentle-

men. There will have to be a second ballot and these two men elected by majority, or determined that the first and second highest shall be elected.

DR. BURRUS: I move that the two receiving the highest votes be elected.

Motion seconded by Dr. Stewart, and carried.

DR. TAYLOR: *Mr. President*: We did not have time to vote for this before. I therefore move that the vote be reconsidered.

Motion carried.

DR. THOMAS: The matter is open for discussion.

DR. TAYLOR: It seems to me that the majority of all votes cast should win. Each of us has a preference. Let there be two votes, and the one who has the majority shall be elected, and the next ballot the one with the highest majority is elected.

DR. THOMAS: Here is the situation: If, in voting, two men have a majority of the votes cast, they be elected? That is your idea—to do away with the second ballot?

DR. TAYLOR: That is my idea.

DR. FAUCETTE: These men, to be elected to fill the vacancies on the State Board of Health are to be elected by the State Society, and, to be elected legally, shall be elected by a majority of the votes of the State Society present. One will certainly be elected in the first ballot. There is a doubt about the second ballot. I move, therefore, that the men to be elected to fill these vacancies shall receive a majority of the votes cast in this meeting.

DR. NOBLE: *Mr. President*: As I understand it, we vote for two names on the same ticket. The tickets must be counted as well as the names. If there are 300 tickets cast, the member-elect must receive 151 votes. The tellers must count the tickets as well as the names on them.

DR. THOMAS: *Gentlemen*: The situation before you, the previous vote being considered, and Dr. Taylor's motion com-

ing up as a substitute, the question before you is this, by resolution:

That in the election the two men receiving a majority of all the votes cost shall be considered elected to succeed those persons now going off the State Board of Health.

Motion carried.

Dr. Thomas:

Votes cast	221
Majority necessary for election	111
Dr. Laughinghouse	171
Dr. Anderson	145
Dr. Thomas	119
Dr. Bonner	1
Dr. L. A. Crowell	1

According to that, all three of the candidates got a majority of the votes cast. Gentlemen, there are three candidates.

Dr. Stewart: I move that we consider the highest one elected and vote on the other two.

Dr. L. F. Horton: *Mr. President*: I move that we consider the two highest votes received, elected.

Motion carried.

Dr. Taylor: *Mr. President*: This is a matter that does not altogether concern the State Society. It is a matter governed by State laws, and we cannot just declare a set of men elected. We must elect them as prescribed by the law, and I think we ought to vote again; go into a ballot.

Dr. Thomas: With all due respect to you, Doctor, the chair rules against you. I believe the Society has a right to say what its wishes shall be.

Dr. Taylor: I don't know that it would be of special use to appeal from the ruling of the chair, but I do appeal.

Dr. Thomas: All who are in favor of the ruling of the chair that the vote just had shall stand, say "Aye." Opposed, "No."

The ruling of the chair sustained.

Dr. Thomas: *Gentlemen*: I want to congratulate the Society of North Carolina in session with the State Board of Health, in its choice of representatives upon that Board. There is no man who has known Dr. Laughinghouse as I have, who admires him as I do; you have made a wise and worthy choice. All of you know Dr. Anderson. I congratulate you. (Applause.)

Upon motion of Dr. Lewis adjournment taken until 2:30 P. M.

CONTINUATION OF CONJOINT SESSION STATE BOARD OF HEALTH WITH STATE MEDICAL SOCIETY.

Dr. Register *in the Chair.*

Report of the Secretary State Board of Health, read.

Upon motion of Dr. W. O. Spencer report accepted and approved.

Report by Assistant Secretary State Board of Health on Tuberculosis, Dr. C. A. Julian, read.

Upon motion of Dr. Morse report approved and accepted.

Report by Dr. Shore, Director State Laboratory of Hygiene, read.

Dr. Thomas: *Gentlemen*: With all due respect to the Secretary of the State Board of Health, and the Assistant Secretary for the Prevention of Tuberculosis, I beg to say that this I regard as a masterly report of a man who is working every day carefully, and with direct methods for the very best health interests of this State. What will you do with Dr. Shore's report?

Upon motion report received and adopted.

Report by Dr. John A. Ferrell, Assistant Secretary for Eradication of Hookworm disease, was then read.

Motion carried that report be received and spread upon the minutes.

DR. LAUGHINGHOUSE: I wish to introduce the following resolution:

Whereas, Extensive investigation by the Hookworm Commission of the North Carolina State Board of Health in this State show hookworm infection to be widespread and rather heavy, especially in rural districts; and whereas many of the infected ones will not seek treatment until its effectiveness is demonstrated to them; and whereas the recognition generally of the value of treatment will serve to bring the people, doctors, and health forces together and unite them in common warfare against the disease; and whereas with the proper and necessary support the said commission will operate a line of temporary dispensaries for the free examination and treatment of the said disease,

Be It Hereby Resolved: That the North Carolina State Medical Society do hereby give its endorsement to the plan of campaign against hookworm disease thus far pursued and to that proposed; that the Society pledges its support to the dispensaries, wherever operated, for the free treatment of all victims of the disease; and that the county societies are hereby urged to lend their active support to the work by urging the Commissioners of the counties visited by the dispensaries to provide the local funds necessary to permit their operation.

Seconded by several and carried.

DR. MCBRAYER: *Mr. President*: At a meeting last night of the State Health Officers' Association, a committee was appointed to adopt the following resolutions. They want the conjoint meeting of the Board of Health and Medical Society to render its endorsement, and in my opinion I want to say—and in the opinion of a great many others—the health work of the State of North Carolina has reached a point where the unit of organization must of necessity be extended into the county.

The educational work that has been done yearly from State headquarters through the State Board of Health and civic associations has permeated the State until we must get down to the unit, and the County is the unit, and the man that has to do the work is the County health officer, and perhaps the city health officer. There has been a great deal of educational work done along the lines of prevention of disease in general, but this concrete work of each county board of health, and especially each county health officer, has not been touched upon, to my knowledge. Therefore the County Commissioners, who are usually composed of farmers, are not alive to the situation, and they think it is all right to appoint a man who can control a few votes as a health officer, and expect him to do no work and pay him on that basis, but that day has passed. Some of the counties are awakening now to the situation, but a large majority of them are not. We want this conjoint session to give its endorsement to the resolutions which are presented by the Committee.

COMPENSATION OF HEALTH OFFICERS.

Resolved, By the conjoint session of the State Board of Health and the Medical Society of the State of North Carolina, in annual convention assembled, that the following fees for County Health Officers are a reasonable and equitable compensation for professional services rendered the public:

For post-mortem examination	$10.00
Examination for lunacy	5.00
For monthly inspection of county institutions, jail, convict camp, and county home, each	4.00
For visits to sick inmate of county institutions, per visit	1.50
Milage from court house	.50

Examination and treatment of more than one inmate on same visit	.50
For obstetrical work, per case	10.00
Surgical service regular fees, with discount of 33% for determining nature of a disease for quarantine officer other than himself	2.50
For sanitary examination of public school building	2.50
For medical inspection of school children, each	.40

Resolved, That each county society be and is hereby requested to use its best endeavors to establish the above mentioned basis of fees.

Resolved, That in the opinion of this Society the life and health of our people are the greatest assets of our State.

Therefore, Be It Resolved, That every county in the State should employ its health officer for all his time.

Resolved, That in case a fixed amount per annum be paid the health officer in lieu of above mentioned fees, we feel and believe that an amount equal to that received by the Sheriff of the county should be considered a minimum salary for his entire time.

L. B. McBRAYER,
WILLIAM McPHAUL,
L. N. GLENN.
COMMITTEE.

Now I would like, with your consent, *Mr. President,* that Col. Ludlow speak for a couple of minutes or so on this, and after that Dr. Stiles has something to say in regard to the practice of other countries.

DR. THOMAS: Dr. McBrayer has referred this resolution to the State Board of Health and the State Society, therefore you will consider it only as the conjoint session and we are entitled to deal with it.

COL. J. L. LUDLOW, Winston-Salem: *Mr. President and Gentlemen*: I had the privilege on yesterday of saying a

few words in regard to this question, and perhaps largely exhausted myself on the subject, in the presence of a large number who are present to-day, and I shall crave your pardon if I repeat, to some extent, what I said yesterday. I believe, as Dr. McBrayer has stated, that the day has arrived in North Carolina when the people are thoroughly appreciative of the efforts of public health officers to conduct such work, and this work is worthy of good and proper remuneration. I therefore heartily concur in the resolutions which Dr. McBrayer has offered, and believe that they should find a response, certainly in the minds of the medical profession, but even more in the minds of the people—the laity—of North Carolina, because, after all, gentlemen, the matter of public health of the people of the State is of vastly more importance to the people of the State than it is to the medical profession; therefore a reasonable basis of fees should be established for these public health purposes; and listening to these discussions on the subject of basis of fees for public health work, my own opinion is, as a layman, that the fees adopted are too small. I begged some of my friends last night to couple with that list of fees certain fees for every health officer of a county, recognizing that such service is worth more than private practice, because such officer, if he has a proper conception of his duties, will be compelled to do a great many things, and perform a great many services for the people of his county, which cannot be enumerated and cannot be paid for by fee; and it is therefore my view that a retainer fee or a salary of certainly not less than $100, for the smaller counties, and $150 to $200 for the larger counties, would be about right.

I therefore heartily second the resolutions offered by Dr. McBrayer.

Dr. Thomas: Along the lines of the very interesting resolution which has been introduced by Dr. McBrayer, and supported by Col. Ludlow, I will ask Dr. Stiles to give us a talk upon this subject.

Dr. Stiles: *Mr. President*: It has been my pleasure to attend four of the North Carolina State Medical meetings. During all these meetings I have not heard a matter presented which appears to me to be of more fundamental importance than these resolutions which have just been read. I am not looking at this subject from the standpoint of the fees that are proposed. To me, personally, those fees seem altogether too low; but I am looking at the subject from the standpoint of the underlying principles involved. The underlying principles seem to me to be these: The county health officer is dealing chiefly with the rural population; the rural population does not receive that same amount of public health protection as does the city population. There is, therefore, a large proportion of our people who are not taken care of properly. In the next place, the rural population is giving the food to the city population, and as investigations are going on, we are finding out more and more that certain of our city infections are to be traced back to the farm. It is, therefore, a matter of imporance, not only to the people of the rural districts, but to the people eating the foods coming from the rural districts, that these county health officers should receive proper support.

This same question is up in practically every State in the Union to-day, and I am glad to see North Carolina taking the lead and trying to solve it.

There is a good deal of talk at the present throughout the country calling for the establishment of a department of public health connected with the Government. I am not going to discuss that question. You know my views on it. I do not care whether we have such department or not, but I do feel that that talk is putting the cart before the horse. The real public health work to be done in the country is not in Washington, it is out on the firing line, and the men on the firing line are the county health officers, and there is not a State in the entire Union where those county officers are supported as they should be.

People compare the United States frequently with Germany, and say our Government is behind Germany in public health matters, because we have not a strong Federal Department of public health. The comparison is not fair. Our public health organization of the Federal Government is much stronger than the public health organization of any country of Europe. (Applause.) Where we are behind the times is in this matter. Europe supports the man who, in our country, corresponds to the public health officer, and here we do not do it,—there is the difference. In Germany there is the so-called "Kreisphysikus," who corresponds to our county health officer. This German health officer has the backing of the medical profession; he has the law back of him; and he has the backing of the public that we do not give in this country to our county health officers; and that lack of support to the county health officers is in my opinion, the weakest point of the entire public system of the United States to-day.

I am very glad to see these regulations come up,—not, as I say, because of the amount of fees presented, but because of the underlying principle that we are at last awakening to the subject that the men out on the firing line ought to be properly supported.

Dr. Thomas: *Gentlemen*: If you will excuse me for taking part in this discussion—it is not a proper thing for the Chairman to do—so deeply do I feel the importance of this matter that I want to say the whole keynote to the situation has been struck, however it may turn out right now. You have magnified, by these resolutions, the importance of the county health officer to the general health of North Carolina, by remunerating him for his services. The laborer is entitled to his wages. It is not right, and it never has been right, that a doctor who has invested his hard-earned means in an education should be called upon to give it to the county for nothing, or for practically nothing, and I congratulate Dr. McBrayer and his associates for this movement to show him, and to show the people,

that we are really offering them a man worthy of their time and worthy of their remuneration. I wish to present the resolutions of Dr. McBrayer, supported by Col. Ludlow and Dr. Stiles, for your consideration.

DR. JULIAN: I want to congratulate Dr. McBrayer upon these resolutions, and to amend one resolution in the following manner:

DR. THOMAS: That is another matter and the Chair will rule it out.

Dr. McBrayer's resolutions adopted.

DR. JULIAN: I desire now to offer this resolution:

Resolved, That the County Superintendent of Health of each county in the State, call the attention of the commissioners of the counties to the needs of hospital facilities for the care of indigent consumptives, and secure appropriations for suitable hospital requirements in connection with county homes.

Motion carried.

Papers read as follows:

"The Importance of Mild Cases of Hookworm Disease," Dr. W. B. Page, Raleigh.

"The Effects of Sanitation on Hookworm Infection," Dr. C. L. Pridgen, Raleigh.

"The Significance of Hookworm Disease," Dr. C. S. Grayson, High Point.

DR. THOMAS: At six o'clock there will be a meeting of the State Board of Health, at room 121, Selwyn Hotel.

DR. WAY: *Mr. President*: I desire to make the motion that the North Carolina Medical Society suspend the rules and elect to honorary membership Col. Ludlow of Winston-Salem.

Those of you who know his faithful work of years as a Health Officer of this State, who have been familiar with his splendid work, will, I feel sure, cordially approve of the motion.

Seconded by several and unanimously carried.

DR. WAY: *Gentlemen of the Medical Society*: I take pleasure in introducing to you the gentleman whom we have known for years as Col. Ludlow, of Winston-Salem, now no longer Colonel, but Doctor Ludlow. (Applause.)

COL. LUDLOW: *Mr. President and Gentlemen*: I have been trained all my life to meet emergencies. I have had occasion to meet a great many emergencies, with more or less satisfaction to myself. The situation here to-day, as has been stated by my good friend, Dr. Way, is so unique, so unexpected, that I must confess I am up against an emergency which I hardly know how to meet. To undertake to express my gratitude, *Mr. President*, for this very distinguished honor which your Society has seen fit to confer upon me, I feel would be fatal, but to fail to express that appreciation would be to convict myself of the crime of ingratitude, which I feel I cannot do. I therefore wish to express, in a feeble manner, my very deep gratitude at this very great and distinguished honor. The honor at the hands of a body of men with whom I have been more or less associated for more than a quarter of a century—despite my youthful appearance; a period of time which has given me an opportunity to measure the personnel of the Association, to measure the degree of manhood which it contains—for the measure of manhood is man's love for his fellowman—and if there is any body of men on the face of the earth whose every thought and every action exemplifies the love of his fellowman, it is the medical profession throughout the world, and particularly the Medical Society of North Carolina. (Applause.) So, *Mr. President*, it is a distinguished honor for a medical man to be admitted to membership to such a Society as this, and for a layman, though he has tried to do some part in upholding the hands of the medical profession in promoting health and the condition which promote public health, it is indeed, *Mr. President and gentlemen*, a significant honor which I appreciate far beyond my ability to express. Gentlemen, I thank you most heartily. (Applause.)

Upon motion the meeting adjourned by Dr. Thomas.

(A special business session of the State Board of Health was held in the rooms of the Secretary, Dr. W. S. Rankin, at the Selwyn Hotel, at 6:00 P. M., at which time formal announcement was made of the expiring of the official terms of two of the Governor's appointees on the Board—Doctors J. Howell Way of Waynesville, and William O. Spencer, of Winston-Salem, and their recent reappointment for a term of six years each by Governor W. W. Kitchin. It was also announced that the State Medical Society had at the conjoint session with the State Board of Health, proceeded that morning to fill the vacancies on the Board caused by the expiration of the terms of Doctors George G. Thomas of Wilmington, and Thomas E. Anderson of Statesville, by holding an election which resulted in the election for terms of six years each of Doctors Thomas E. Anderson of Statesville and Charles J. O'H. Laughinghouse of Greenville.

The Board then proceeded to effect a reorganization and elected as President for the ensuing term of six years, Dr. J. Howell Way, of Waynesville.)

TREATMENT OF BOWEL TUBERCULOSIS.

SAMUEL GOODWIN GANT, M.D., L.L.D., PROFESSOR OF DISEASES OF THE RECTUM AND ANUS IN THE NEW YORK POST GRADUATE MEDICAL SCHOOL AND HOSPITAL, NEW YORK.

The treatment of intestinal tuberculosis is frequently unsatisfactory because it often fails and when sucessful considerable ingenuity and patience are required to effect a cure and there is always the possibility of reinfection. Routine measures are impracticable because of the varying types and virulence of the disease, the fact that it is primary in one instance, secondary in another and further because it is often necessary to suspend the curative for a symptomatic treatment directed against a particular manifestation which has assumed sudden and pronounced importance.

Measure to improve the general health are of prime importance and should be practiced at the earliest moment. These consist pricipally in removing the patient from disagreeable and unhygienic surroundings and placing him where he has cheerful companions, plenty of sunshine, fresh air, moderate exercise, diversion and where he can obtain abundance of fresh milk, eggs and other suitable nutrient foods. It is also important to clothe the patient properly, have him avoid exposure and to prescribe tonics or tissue builders, such as Russell's Emulsion of mixed fats and vegetable products, olive oil, eggnog and cod liver oil preparations. When the patient is anemic and nervous, iron, strychnia and arsenic may be employed to advantage alone or in combination with codein, guaiacol or creosote, when the patient has an irritable cough. Good results have been reported from Ferrier's recalcification lime

treatment as well as Wright's injection of the succinimid of mercury followed by the administration of potassium iodide.

Medical agents are at times indicated in the *symptomatic treatment* of intestinal tuberculosis to relieve diarrhea, pain, hemorrhage, putrefaction and other manifestations but should be employed with discretion because they frequently interfere with digestion, induce intestinal catarrh and sometimes cause obstruction through the formation of bismuth enteroliths.

For controlling diarrhea opium is the remedy *par excellence,* because it diminishes the evacuations, relieves accompanying cramps and encourages sleep. The various preparations are serviceable but powdered opium in 1-2 to 1 grain doses alone or combined with belladonna, when there is enterospasm, affords the greatest relief but it is curative only insofar as it gives the bowel rest.

Numerous antiseptic and anti-putrefactive remedies have been prescribed in the treatment of tubercular diarrhea, but experience has demonstrated that they are ineffective for the reason that it is impossible to administer them in amounts sufficient to produce a bactericidal effect owing to their toxic and irritative qualities. The most reliable drugs of this class are calomel, bismuth subnitrate, salicylate and carbonate, salol, betanaphthol, tannoform, and, in suitable cases, dilute hydrochloric and sulphuric acids.

Styptic medicines may be prescribed but are rarely effective except when employed in combination with opium. The most reliable and least harmful of these are lead acetate, gallic acid, tannalbin, ichtoform, subgallate of bismuth and silver nitrate but the latter should be cautiously employed to avoid argyria.

Koch's tuberculin and different sera have been employed in the treatment of intestinal tuberculosis but the writer has never observed any improvement from them.

Irrigating Treatment:—Bowel flushing is beneficial in all types of intestinal tuberculosis but gives better results in some

than other forms being more effective in *enteric* or *superficial ulcerative* than in either the enteroperitoneal, hyperplastic, glandular or peritoneal varieties because the lesions are superficial and easily reached.

In the *entero-peritoneal* or deep ulcerative variety irrigation accomplishes less since all the tunics may be diseased but is beneficial because it clears the bowel of irritating feces, discharges and toxins, attenuates and dislodges tubercle baccilli, minimizes the danger of mixed infection, increases local resistance and favors healing of the excoriated mucosa but further than this washing is useless because it does not reach foci in the muscular and peritoneal coats.

In *hyperplastic tuberculosis* irrigation improves the accompanying simple or specific catarrh and later when the neoplasm degenerates and large crater-like ulcers form, it limits toxemia, mixed infection and hemorrhage. In *fibrosclerotic, glandular* and *peritoneal* intestinal tuberculosis irrigation is useful but not curative.

There are no specific irrigants, consequently those effective in other forms of entero-colitis may be employed here. Flushing with water is beneficial but when the irrigant has soothing, antiseptic, styptic or healing qualities, better results are obtained, but their chief usefulness is due more to their mechanical effect in ridding the bowel of toxins, acrid discharges, putrefying food remnants and foul feces than to their medicinal qualities. Injected cold (55°-75°F.) solutions are disagreeable, often cause cramps and are quickly expelled while warm or hot (100°-115°F.) soothe the gut, diminish soreness, relieve enterospasm and are more effective because longer retained.

When there is exhausting diarrhea, copious bleeding and quantities of mucus and pus, the writer flushes the bowel every other day with silver nitrate, thirty grains to the quart, followed in a short time by a saline irrigation to neutralize and remove any excess of silver, until the stools are less numer-

ous and bleeding is arrested from which time the bowel is flushed daily with boric acid 3%, ichthyol ½%, balsam of Peru 1%, permanganate of potash 1½, or protargol or argyrol 5%.

Olive oil, neutralol and liquid paraffin, in tablespoonful doses at night are often beneficial but better results are obtained when they are combined with bismuth, aristol, salol or iodoform and are deposited high up in the colon in amounts varying from four to ten ounces because then they allay muscular spasm, protect the gut from irritation and favor healing of raw surfaces.

Irrigations often fail because the technic of their administration is not understood and the tube is permitted to curl up in the rectum or sigmoid flexure. Patients may be permitted to sit in the toilet or remain upon their back or side when taking an enema, to evacuate feces but irrigations designed for the cure of ulcers should be administered by the physician or a trained attendant. The simplest, quickest and most effective ways of filling the colon with fluid or oil is to place the patient in the exaggerated knee-chest or inverted posture, introduce the sigmoidoscope and pour the solution through the instrument or pass full length a colon tube attached to a funnel and let it flow in gradually and then escape through the lowered tube or remain to be evacuated later.

Topical Applications: Tubercular ulcers of the sigmoid, *rectum* and *peri-anal* regions can be more satisfactorily treated than when higher up because topical applications can be employed. When the ulcers are in the bowel, the treatments are made through the proctoscope by means of a cotton applicator dipped in a twenty per cent. solution of ichthyol and glycerine, balsam of Peru, argyrol, protargol, or a weaker solution of silver nitrate, but when they are sluggish or covered with flabby granulations, these remedies should be used very much stronger. Chemical caustics like nitrate and glacial acetic acids should never be employed because they frequently extend to

and destroy healthy tissue, consequently when radical treatment is indicated, the electric or Paquelin cautery should be substituted for them.

Peri-anal tubercular ulcers require frequent cleansing and about the same topical applications as rectal but when stimulation and cauterization aggravate the patient's condition, the lesions should be treated twice daily with a 10% solution of methylene blue or be covered with cotton soaked in an emulsion composed of olive oil Oi, bismuth ʒii and orthoform ʒi, to allay pain and encourage healing.

Irrigation through the anus and topical applications frequently fail because the fluid cannot be made to reach all the diseased gut and in these and urgent cases, an artificial opening should be made above the disease so that *through and through* irrigation may be practiced or the affected gut should be resected or excluded from the fecal current.

Surgical Treatments—Surgery is practiced in the treatment of intestinal tuberculosis more often than it was a few years ago and with better results. Operative measures have for their object (a) providing a means of through and through bowel irrigation; (b) putting the affected gut at rest, and (c) removal of the disease. The following are the procedures employed for these purposes:

1. Enterostomy and Colostomy.
2. Appendicostomy.
3. Cecostomy.
4. Gant's Cecostomy with an arrangement for irrigating the large and small intestine.
5. Exclusion.
6. Resection and Amputation.

(1.) *Enterostomy* and *Colostomy* are at present rarely resorted to because of the disgust which accompanies evacuation of the bowel through an abdominal opening, irritation of the skin by the feces and discharge, occasional prolapse of the gut

and finally because a prolonged and serious operation is required for closure of the artifical anus.

(2.) *Appendicostomy* has proven extremely valuable in the treatment of tubercular and other ulcerations of the large bowel since it makes thorough irrigation of the colon and rectum feasible. This procedure is often impracticable because the appendix is too short, stricured, otherwise diseased, the outlet closes too quickly, the appendix slips back into the abodmen or sloughs off through compression or impairment to its circulation and because it is of no use in small bowel tuberculosis. The technic of appendicostomy by the writer's method is very simple and irrigation can be started immediately. The appendix is reached and brought outside in the usual way, its tip is excised, the stump is ligated around a Gant appendiceal irrigator, with catgut and the abdominal wound closed. Sutures of the appendix and cecum are unnecessary since the irrigator retains the appendix in place when the operation has been completed, the intestine is flushed and the irrigator is closed with the attached stopper.

(3.) *Cecostomy* is indicated when the disease is confined to the large bowel and is preferable to appendicostomy because it is always effective and does not have so many disadvantages.

In this procedure the anterior surface of the cecum is exposed, three purse-string sutures are introduced and the bowel is incised inside the suture line. Then a catheter is introduced and the stitches are tied infolding the gut which forms a valve around it to prevent subsequent leakage. The operation is then completed by introducing cecal suspensory sutures, approximating the wound and closing the catheter with a cravat clamp after it has been attached to the skin by adhesive strips.

(4.) *Gant's Cecostomy with an arrangement for irrigating separately or simultaneously the small and large bowel* is the most satisfactory method of obtaining through and through irrigation because it enables the attendant to treat tuberculosis and other diseases with equal readiness when they are located

either in the large or small intestine or both and to measure and have the solution retained as long as desired.

The operation has been performed many times; there has been no mortality nor unpleasant sequelæ and the opening has always been closed spontaneously after stimulating applications, or cauterization.

Employing the irrigator, the procedure is very simple, requires but fifteen minutes and the bowel can be flushed at once or later. Following exposure of the cecum, introduction of the anterior cecal purse-string stitches and incising of the gut as an ordinary cecostomy, a Gant entero-colonic irrigator is pushed across the cecum through the ileo-cecal valve and into the small intestine. The inverting or circular valve-forming sutures are then tied, the suspension stitches are introduced and the wound is closed about the irrigator by the layer method.

The instrument can be had in rubber or metal but the former costs less and is more comfortable because of its pliability than the latter which is more durable. As will be observed the irrigator has two inner tubes and an inflating attachment which rests just beyond the ileo-cecal valve when in position. The connecting rubber tubings are opened and closed by cravat clamps and the metal irrigator is retained in position by straps which pass from the attached rings around the body while the rubber instrument is prevented from slipping out by an encircling adhesive strip fastened to the skin.

When the small intestine is to be cleansed, the irrigating apparatus is connected with the hard rubber projection at the end of the irrigator and the inflating bag is distended with air if the solution is to be retained in the small bowel but when the colon is to be flushed, connection is made with the extension piece at the side and where the small and large intestine are simultaneously washed out, both hard rubber connections are joined with the fluid container tubes.

The advantages of the writer's cecostomy are obvious since

it enables one to treat various inflammatory and ulcerative lesions in all parts of the small and large intestines.

The same solutions are indicated in "through and through" irrigations as have been recommended for flushing the bowel by way of the anus but in both the position of the patient should be changed from time to time to make sure that the fluid reaches all sides of the diseased bowel.

(5.) *Intestinal Exclusion,* barring removal of the infected bowel, is the most satisfactory way of surgically treating tuberculosis when through and through irrigation fails because it diverts the fecal matter and discharges from the affected bowel thereby removing the main source of irritation and giving the gut a chance to rest and heal. The writer has had occasion in a number of instances to verify the usefulness of this procedure in tubercular and other intestinal affections.*

A segment of the intestine may be excluded by (a) *lateral anastomosis*: (b) *unilaternal exclusion,* where the bowel is divided and closed above the disease and the proximal and joined to the gut below it and (c) *bilateral exclusion,* where the gut is severed and closed on both sides of the affected part and the upper extremity of the bowel is anastomosed with the sigmoid, rectum or other part of the healthy bowel below the foci.

Exclusion is always beneficial, frequently effects a cure, avoids the disgusting features of colostomy, the dangers and complications of resection, and may be employed to advantage in all varieties of tuberculosis.

(6.) *Resection and Amputations* In aggravated cases of tuberculosis where the patient's condition permits, complete removal of the infected bowel by *enterectomy, cecectomy, colectomy, sigmoidectomy* or *proctectomy,* according to location of the disease, affords the greatest opportunity for temporary relief or a permanent cure. In some instances multiple

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* GANT: Constipation and Intestinal Obstruction, 1909, p. 409.

resection is indicated and it is necessary to remove small or large amounts of the intestine but even so these patients withstand the operation as well as where resection is done for other affections. When the patient is extremely debilitated, it is occasionally advantageous to short circuit the intestine and give the sufferer an opportunity to recuperate prior to excision.

In a few urgent cases following extirpation, the writer employed the Murphy button but in most instances the through and through suture method was used both in lateral and end to end anastomosis.

In tubercular subjects irrespective of where the principal foci are situated, the mucosa of the entire bowel is usually involved in a simple catarrhal or specific inflammation and on account of this it is the writer's custom to join the proximal end of the divided gut to the lowermost feasible point of the intestine, particularly in tuberculosis of the lower ileum and colon.

Resections are possible to within an inch of the pelvic floor but when the rectum is infected, resection and anastomosis are usually unsatisfactory because the wound becomes infected. Owing to this, mobilization of the abdominal segment and amputation of the diseased bowel followed by suture of the proximal end to the anal skin is preferable. When from one to three inches of the lower rectum is involved, the gut can be freed, brought down, amputated and anchored with or without opening the peritoneum by means of perineal excision. When the disease is located higher up, some surgeons do a Kraske but this operation is dangerous because of the shock and leaves many disagreeable sequelæ. The writer prefers abdomino-perineal extirpation when the upper rectum and lower sigmoid flexure are involved and approximation of the proximal end to the anal region with preservation of the sphincter muscle, perfomed in two stages. The abdomen is opened and the bowel mobilized by division of the mesentery. superior hemorrhoidal artery and peritoneum, after which it

is pushed into the rectum when the pelvic peritoneum and abdominal wound are closed. The patient is then placed upon the left side, the sphincter is split and the lower rectum is freed through a posterior median incision, after which the operation is completed by bringing the bowel down, amputating, suturing it to the skin and closing the wound following approximation of the sphincter sides.

Resection of the small intestine is much easier than that of the cecum, colon or rectum because the latter are closely bound down by their mesenteric attachment and extensive adhesions which characterize the disease in these segments.

Excision of the cecum and extremities of the asceding colon and ileum for neoplastic (ileo-cecal) tuberculosis is not very dangerous, but it is a tedious operation owing to the size of the tumor and the firm agglutination of its fibrous capsule to the abdominal wall, appendix loops of intestine or pelvic organs.

In *anal* and *peri-anal* tuberculosis, extirpation of the disease is frequently to be discountenanced because the operation opens up the lymph spaces and through them the infection may rapidly extend or terminate the life of the patient.

The *prognosis* following resection and amputation in hyperplastic tuberculosis is very flattering and good results have followed these procedures in the enteric and entero-peritoneal types of the disease, but less is to be expected in the latter because the intestine is more extensively involved than in the former which ordinarily attacks but a single part of the gut and is less often accompanied by serious lung complications.

Some physicians decry surgery in bowel tuberculosis but the condition of the patient as regards his strength to withstand it, should determine if an operation is best and not the fact that he has a tubercular intestine.

Nearly all subjects afflicted with intestinal tuberculosis have latent or active foci in the lung which may become aggravated and cause the patient's death when ether is administered, and

because of this the writer substitutes ethyl chloride or gas in the shorter and chloroform in the longer operations where general anesthesia is employed. In a few instances he has succeeded in almost painlessly performing appendicostomy, cecostomy and short circuiting for the relief of tubercular and other lesions of the intestine by infiltration anesthesia, usually a 1-8 per cent. eucain solution of plain sterile water.

There is no excuse for confusing these types of tubercular infection with the *neoplastic* or *hyperplastic* variety because four or five years are required for the latter to develop and with the exception of slight catarrhal or obstructive manifestations the patient is not greatly disturbed nor does he look very ill or emanciated.

In other types of the disease nothing can be made out except tender spots and active peristaltic movements, while in hyperplastic tuberculosis one or more large, firm, elastic tumor masses can be seen or located by palpation, usually at the ileo-cecal angle, the patient suffers less severely from indigestion and exhaustive diarrhea, shows marked symptoms of obstruction and may exhibit pus accumulations or pyostercoral fistula when perforation or disintegration of the growth has taken place.

This type of infection is very much more frequently mistaken for carcinoma than other forms of tuberculosis owing to its tumor formation and the obstructive manifestations consequent upon it but should be readily differentiated from cancer owing to its slower development, absence of cachexia and the fact that it occurs in younger persons.

The various types can be satisfactorily diagnosed when located within the sigmoid flexure, rectum or the perianal region. because both ulcers, tumor and stricture formations can be felt by digital examination or inspected through the proctoscope or sigmoidoscope and the discharge and scrapings from the lesions are easily obtainable for examination to determine the presence or absence of tubercles or tubercular tissue.

Tubercular differ principally from other ulcers in this region by their large size, depth, grayish uneven base, tubercles upon them, irregular undermined edges, lack of sensitiveness, tendency towards girdle formation, propensity to heal at one point while they extend in another and the serous character of the discharge from them.

Peri-anal tuberculosis produces a dematitis, the skin is of a livid red color and raised at different points by conglomerate masses of tubercles but later when caseation has begun, grayish elevations are to be seen at one point and diminutive excavated depressions at another. When fully developed, one or more large irregular shaped ulcers with fluted edges are observed upon the skin which gradually extend in every direction but with particular rapidity towards the anus, the surfaces of which are constantly bathed in a serous discharge with tendency to cause hypertropic changes and the formation of papillomatous growths similar to those seen upon the mucosa in bowel tuberculosis.

In conclusion, the writer would state that his results in this class of cases have been very much better since he began to regard and treat these patients on the basis of a *dual* infection by instituting hygienic and other supportive measures for the lung involvement and directly treating the bowel lesions by internal medication, irrigation, topical applications and operation when necessary.

"Intestinal Tuberculosis." Dr. Samuel G. Gant, New York.

Dr. ——. In reply to queries Dr. Gant in his closing remarks said that tuberculosis of the sigmoid and rectum was comparatively easy to diagnosis at all times because the lesions could be inspected through the sigmoidoscope, and the discharge removed from them, for microscopic examination.

Small intestinal and cecal tuberculosis is more difficult to recognize in the early stages and is accompanied by gastric

disturbances and frequent cramps which appear at short intervals during which time the stools are very frequent and have a foul odor, but when the disease is fully developed the patient presents the typical tubercular appearance and often suffers from lung involvement.

As regards location he stated that 85 per cent. of all cases of tuberculosis were located in the cecum or ileocecal angle and resulted most frequently from infection by the human tubercle bacilli though it occasionally resulted from the bovine variety.

Regarding rectal fistula, Dr. Gant said that it was doubtful if more than 5 per cent. were really tubercular and consequently that there was no reason why an operation should not be done providing the patient's condition would permit.

He mentioned the fact that hyperplastic cecal tuberculosis was often confused with cancer and operation declined because it presents as a large, hard, nodular mass but a correct diagnosis is usually made when the history of the case is taken into consideration, for these patients are usually sick for three or four years and suffer more or less from diarrhea prior to development of the obstructive symptoms.

Dr. Gant also said that tubercular diarrhea required a longer time to cure than other forms even by the newer methods and further that most of these cases suffered from latent tuberculosis of the lung, and should not be given ether when operated upon because it frequently incites these lesions to progress more rapidly and kill the patient, and said that he uses chloroform or local anesthesia.

The irrigating treatment should be practiced for at least three months even though the patient feels perfectly well before the expiration of this time.

Dr. L. B. Morse, Hendersonville: *Mr. Chairman*: It has been some time since I have listened to a paper with more interest than I have to Dr. Gant's.

The subject of intestinal tuberculosis is, as everyone knows, one of the most awkward situations which one treating tuber-

culosis has to face, and I have enjoyed the paper very much indeed.

I would like to ask the doctor if it is possible at all times to quite definitely locate the involvement, as to whether it is on the small intestine side of the appendix or whether it is in the cecum. I have been at a loss sometimes to satisfy myself, in this regard.

Dr. H. B. Weaver, Asheville: *Mr. President*: I am rather sorry the Doctor did not enter more fully into the pathology and etiology of intestinal tuberculosis, and I want to know if it has been determined fully that the human type of tuberculosis can so affect the epithelium, mucous membrane, peritoneum, and all the connections of the abdominal region—whether it is caused by the human type, and whether these operations are so successful in eradicating the human type instead of the bovine type.

THE PHTHALEIN TEST.

ESTIMATION OF THE RENAL FUNCTION BY MEANS OF PHENOLSULPHONEPHTHALEIN AND ITS VALUE IN THE DIAGNOSIS AND PROGNOSIS OF RENAL DISEASE, BY J. T. GERARHTY, M.D., ASSOCIATE IN GENITO-URINARY SURGERY, JOHNS HOPKINS UNIVERSITY AND L. G. ROWNTREE, M.D., ASSOCIATE IN PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, JOHNS HOPKINS UNIVERSITY.

PAPER READ BY J. T. GERAGHTY, M.D., Baltimore, Md.

Phenolsulphonephthalein which was first described by Remsen, is a bright red crystalline powder, somewhat soluble in water and alcohol and readily soluble in the presence of alkalies. The drug, as determined by Abel and Rowntree, is *non-toxic, non-irritant locally,* and is excreted practically entirely by the kidneys and with extraordinary rapidity, appearing in the urine normally within a few minutes of injection. In alkaline solution it presents a brilliant red color which is ideally adapted for quantitative colorimetric estimation.

Technique.

In our earliest work only the time of appearance, the time of maximum intensity of excretion, and the time of gross elimination were considered. In the course of the work it became evident that the color properties of this substance make it peculiarly well adapted for colori-metric methods of estimation, and for this purpose the Duboscq colorimeter was employed and has proven of the greatest value.

In order to obtain data of real value it is essential to any functional test to know not only the time of appearance of the drug in the urine, but to know exactly what part of the drug. a known amount of which has been administered, is recovered in a definite period of time.

Twenty minutes to half an hour before administering the test, the patient is given 300 to 400 cc. of water in order to insure free urinary secretion, otherwise delayed time of appearance may be due to lack of secretion.

Under aseptic precautions a catheter is introduced into the bladder and the bladder completely emptied. Noting the time, 1 cc. of a carefully prepared solution of the phenolsulphonephtalein containing 6 mg. to the cc. is accurately administered subcuteaneously, intramuscularly or intravenously by means of an accurately graduated syringe. (We have used the Record 2 cc. syringe which is graduated in fifths of a cc.)

The urine is allowed to drain into a test tube in which has been placed a drop of 25 per cent. NaOH solution and the time of the appearance of the first faint pinkish tinge is noted.

In patients without urinary obstruction the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour and into a second receptacle at the end of the second hour.

1. This solution is obtained as follows: 0.6 gram of phenolsulphonephthalein and 0.84 cc. of 2 NaOH solution are added to 0.75 per cent NaCl solution. This gives the mono-sodium or acid salt which is red in color and which is slightly irritant locally when injected. It is necessary, therefore, to add 0.15 cc. more of the 2 hydroxide, a quantity sufficient to change the color to a beautiful Bordeaux red. This preparation is non-irritant.

A rough estimate of the time of appearance can be made by having the patient void urine without the use of the catheter at frequent intervals. In prostate cases it is wise to have the catheter in place until the end of the observation. The catheter is corked at the time of the appearance of the drug in the urine and the cork is removed at the end of the first hour and at the end of the second hour, each time the bladder being thoroughly drained. On many of the patients of this type on

whom our observations have been made, a retention catheter has been in use as part of the routine treatment on account of the residual urines. When a catheter is to be employed it is well to previously have the patient under the influence of hexamethylenamine.

Each sample of urine is measured and the specific gravity is taken. Sufficient NaOH (25 per cent.) is added to make the urine decidedly alkaline in order to elicit the miximum color. The color displayed in the acid urine is yellow or orange, and this immediately gives place to a brilliant purple red color when the solution becomes alkaline. This solution is now placed in a liter measuring flash and distilled water added to make accurately 1 liter. The solution is then thoroughly mixed and a small filtered portion taken to compare with the standard, which is used for all of these estimations. All our estimations until recently have been made by means of the Duboscq colormeter. Recently the Hellige hæmoglobinometer has been utilized. A standard alkaline solution 6 mg. to a liter is placed in the wedge-shaped cup. The urine collected is diluted to a liter and a small filtered portion poured into the rectangular cup. The wedge-shape cup is now manipulated by means of the screw until the two sides of the color field are identical. The per cent. on the scale is now noted. This instrument is much cheaper than the Duboscq and approximately accurate. This instrument has been especially modified for use in connection with the phthalein test.

Fairly accurate estimations, however, can be obtained by means of graduated cylinders—equal quantities of the standard solution and the diluted urine being used in separate cylinders and the denser solution being diluted until the colors become identical. The amount of drug in the solution being known, the amount in the urine can be readily calculated.

When the collected urine has been made strongly alkaline it is necessary to estimate the phthalein within a few hours as the red color fades gradually under these conditions. When

it is desirable or necessary to defer the estimation for some hours or days, it is better to make the urine distinctly acid, under which conditon the phthalein remains unchanged. It should of course be made alkaline again when the estimation is made.

The method heretofore utilized in connection with other tests, of determining the time necessary for total elimination is erroneous on this account, whereas in the case of phthalein a normal kidney excretes the greater part of the dye injected within two hours of the time of its administration, and then only a small trace for the next two hours; the moderately diseased kidney secretes a fair amount within the first two hours, say 50 per cent. of that excreted by the normal kidney, but the concentration in the blood still being high it continues to excrete a fair amount in the following two hours, so that at the end of four hours little difference may exist in the total work accomplished. One hour and at most two hour observations are therefore recommended. In cases where slight changes in function exist this can be most accurately demonstrated by one hour collection following the use of an intramuscular (lumbar) injection.

Excretion in Normal Individuals and Variations Dependent on Methods of Administration.

The excretion has been studied in several hundred normal individuals. In our earlier work subcutaneous adminisration was used exclusively, the drug appearing in the urine in from 5 to 11 minutes, 40 to 60 per cent. (average 50 per cent.) being excreted in the first hour after its appearance in the urine, and 60 to 85 per cent. for two hours. In health the elimination is practically completed in two hours, only a trace being present during the third and fourth hours.

On account of the large variations in excretion in normal individuals following subcutaneous administration, it was thought a large part of this variation might be due to tardiness of absorption. The excretion following intramuscular (gluteal and

lumbar) injection was consequently investigated. After gluteal injection (13 readings in 12 individuals) variations from 41.7 to 63.5 per cent. were encountered for one hour readings (10 minutes being allowed for time of appearance) an average of 51 per cent. being eliminated.

In 20 reading on 14 normal individuals the variation following lumbar injection was from 51.8 per cent. to 64.1 per cent., except one in the first test read 40.2 per cent, and there being some doubt as to the accuracy of the technique three subsequent control injections were given showing an output of 60—61 per cent. on each occasion. The average output of the twenty readings was 57.5 per cent. This would seem to indicate *that absorption plays but a small role in effecting the accuracy of the test when one hour determination following intralumbar injections are employed.*

Intravenous injections have been employed. The output for one hour (20 readings in 14 individuals) averaged 67.9 per cent., considerably higher than that from other methods of administration. The excretion varied from 62.5 per cent. to 80 per cent., with the exception of one, who excreted 57.8 per cent. This individual gave a low output following all methods of administration, although no other evidence of renal disease could be discovered. By studying the curve of excretion for five and ten minute intervals it was found, however, that 30 35 per cent. is excreted in the first 10 minutes after appearance, this being half the total excretion for one hour. It at once became apparent, this being true, that observation for one hour periods are subject to the same criticism that would apply to observation over 4 or 5 hours following subcutaneous injection or a study of total excretion. The striking rapidity of elimination in the first few minutes following intravenous injection results, of course, from the concentration of the drug in the circulation, each cc. of blood going to the kidney cells carrying more phthalein than by any other method of administration. When intravenous administration is employed, ob-

servation for more than one-half hour should not be used, the amount of excretion for this time being almost equal to that for two hours following the subcutaneous injection. It has yet to be determined if the same reliance can be placed upon the subcutaneous, or especially upon the lumbar method of administration, as well as what decrease in excretion occurs in disease following the intravenous adminisration.

The Study of Nephritis.

Heretofore functional tests have not been considered of any great value to the clinician in relation to nephritis. In fact hyperpermeability to methylene blue, indigo carmine and rosaniline has been shown to exist in acute and in chronic parenchymatous nephritis, while on the other hand decreased permeability with slow appearance and prolonged excretion has been demonsrated in the chronic interstitial variety.

Acute Nephritis.

An opportunity to study only five cases of acute nephritis has presented itself. One case of scarlatinal nephritis had a severe angina and exhibited evidence of grave toxemia. It was impossible to determine whether the toxemia was due to the nephritis or to the angina. An injection of 6 mg. of the phthalein was followed by the appearance of the drug in the urine in 23 minutes. Forty-four per cent. of the drug was excreted in the first hour. This patient recovered and the nephritis completely cleared up in the course of a few weeks.

The other patient, with scarlatinal nephritis, was in bad clinical condition at the time of the first test. He had scanty urine of high specific gravity, smoky from blood and containing much albumin and many casts. The prognosis seemed bad.

The usual phthalein test was administered, the drug appearing in the urine in 22 minutes and only 4.8 per cent. being excreted in one hour. Three weeks later, the nephritis having almost disappeared and the clinical condition being greatly im-

proved, as well as the condition of the urine, the test was repeated, showing the appearance of the drug in 7 minutes and an excretion of 38.1 per cent. for one hour. Six weeks later the patient was entirely well and excreted 50 per cent. of a 30 mg. dose in the first hour.

The third case, a boy of 7 years, was a case of nephritis of obscure nature, associated with purpura hemorrhagica and profuse hematuria. The time of appearance of the phthalein was not obtained, but he excreted 19.4 per cent. in the first hour and 19.1 per cent. in the second hour. Death occurred suddenly five days later from a suspected internal hemorrhage. No autopsy could be obtained.

The fourth case, a boy, aged 8 years, was admitted with typical acute nephritis of a severe grade; the prognosis being considered unfavorable. The phthalein output on admission was 11 per cent. for two hours. Four days later the clinical condition was much better and the phthalein output had increased to 28.4 per cent. for two hours. Two weeks later the nephritis had practically cleared up and the phthalein excretion increased to 68.8 per cent. for two hours.

J. Age 35 yrs.

Patient was well until a few weeks before admission when he developed dyspnoea and marked œdema. Admitted in May, 1910, a marked anasarca, low urine output, high specific gravity, large amount of albumin and large number of casts. Heart normal. No signs or uremia. Phthalein test, given subcutaneously, showed 20 per cent. excretion for two hours. Clinical condition became gradually worse. Patient died one week later without a second test.

Autopsy: Slight chronic diffuse nephritis with marked acute diffuse nephritis.

It should be remembered, however, that when an acute process is present, variation in function may be very rapid and that a good elimination on one day may be followed within a day or two by a marked decrease in function and vice versa.

Consequently in this type of case the test should be repeated frequently.

While no conclusions can be drawn from five cases, it is suggestive that in none of them was there increased permeability, but that on the contrary the permeability was markedly decreased when the condition was considered clinically grave. In some of the cases below classed as chronic nephritis an acute exacerbation was associated with the chronic nephritis at the time of the test. Here also the permeability was decreased but with the subsidence of the acute process the permeability increased.

Chronic Perenchymatous Nephritis.

In all 23 cases belonging to the so-called clinical type of perenchymatous nephritis have been studied. These cases represent different grades of severity and the duration of the disease varies from a few weeks to seven years.

In five very mild cases of short duration showing only slight œdema, with albumin and casts, but with a normal urinary output, the time of appearance of the drug and the amount excreted was normal. In one of these cases the time of appearance was 8 minutes and the output 52.5 per cent. for one hour. Another patient was a student who considered himself perfectly well but in whose urine albumin and casts were discovered by chance. On close inspection a slight œdema about the eyes was detected. No other evidence or suggestion of the disease could be found. In this instance 35 per cent. for the first hour and 8.6 per cent. for the second hour was excreted following subcutaneous injection. After intravenous injection 46 per cent was excreted for the first half hour (slightly decreased) and 17 per cent. for the following hour and a half. In three other cases a normal excretion was found but all three patients were free from symptoms, albumin and casts being the only indication of disease.

In cases of longer standing or where the disease is of ordinary severity the time of appearance has always been delayed

slightly (10 to 25 minutes) and the amount excreted is definitely below normal. In one patient who has been under constant observation for more than a year, the time of appearance (20 minutes) and the amount excreted for one hour (20 per cent.) has remained practically unchanged. Clinically his condition is better than a year ago.

Another patient, age 30, admitted November 25, 1910, with secondary lues and a definite parenchymatous nephritis of six months duration showed an output of 47 per cent. for two hours at which time his urine contained 50 g. albumin to liter. On December 10th his phthalein output was 51 per cent. and the albumin 25 grams. to liter, while his general condition showed but little change. Because of the possibility of the nephritis being syphylitic in origin 0.45 gm. of salvarsan was given intravenously. On December 26th his condition was definitely worse, urine decreased in amount and the albumin increased to 68 gm. to liter, the phthalein output dropped to 31 per cent. On January 3rd his clinical condition was very grave, albumin 96 gm. to liter and the phthalein excretion was 22.7 per cent. On January 8th his condition was the same and the phthalein output unchanged. But on January 17th his clinical condition was improved, albumin decreased in amount, and the phthalein output increased to 43 per cent. On February 7th the patient was again in good clinical condition, the albumin only 6 gm. to liter, while the output of phthalein increased to 52.7 per cent. The blood pressure throughout ranged from 80 to 110 and no eye changes were present. Although the phthalein output dropped pari passu with the exacerbation of the clinical manifestation, yet at no point did it reach a level which would indicate an immediate danger, whereas, clinically, death was considered imminent.

Another interesting case is as follows: Mrs. S., age 57, admitted November 16, 1910, with an acute exacerbation of a chronic nephritis. Symtoms of mild uremia were present and the urine contained 7 gm. albumin to liter and many casts.

The systolic blood pressure was 190 mm. Hg. Her phthalein output was 19 per cent. for two hours. She gradually became more uremic and two weeks later was definitely comatose. At this time her phthalein output was 20 per cent., although her clinical condition was considered very grave. In a few days she regained consciousness and shortly after left the hospital. Ten weeks later patient reported that with the exception of slight œdema and dyspnoea on exertion all her symptoms had disappeared.

In the most severe grades of chronic parenchymatous nephritis or where the disease is of long standing and associated with secondary sclerotic changes, the output is reduced very markedly, and in some instances no trace of the drug can be found in the urine. Here also as in the interstitial type, the absolute failure of excretion, or the excretion of a mere trace, has been followed within a short time by death from renal failure. Some details regarding a few of these cases may be of interest.

Female, age 28, admitted August, 1910. History of œdema of face for over two years. Suffered some from headache. For a few months previous to admission had been unable to work on account of general weakness. On admission had nausea and occasional vomiting. Mentally clear. Marked anæmia. Some œdema of face. Urine contained large amount of albumin and numerous casts. Output of urine small. Phthalein test given and no trace of drug could be detected in the urine during the next three hours. She gradually became more uræmic, the nausea and vomiting became rather continuous although mentally clear. Death occurred within four days. No autopsy was obtained.

Another case, one of syphylitic nephritis, was of rather peculiar interest. M. A., age 23, admitted October 24, 1910, exhibiting severe general anasarca and marked dyspnœa. Symptoms had existed for one month. Pulse small and of low tension. Some anemia. No signs of uremia. Heart was nor-

mal. Urine had 6 gm. of albumin to the liter but no casts were found. Trace of sugar. Some days after admission hyaline casts were discovered. On November 8th the albumin had increased to 30 gm. to the liter although the dyspnœa was better and the general œdema somewhat decreased. The phthalein output was at this time only 6 per cent. for two hours. On November 14th the general condition seemed about the same, but her phthalein output had decreased to a mere trace. The following day she became suddenly irrational and rapidly went into coma and died within twenty-four hours. Autopsy findings: syphylitic hepatitis, general amploidosis especially of kidneys and spleen, thrombosis of right renal veins and veins of left side of pelvis.

Although the number of cases of chronic parenchymatous nephritis had not been very large, sufficient data have been collected to indicate that the test is of decided value in revealing the functional efficiency of the kidney in this condition. In the mild cases very little disturbance of function is indicated, and it may be impossible from the test alone to differentiate this condition from albuminuria. When there is a marked decrease in the phthalein output, marked renal changes are present, and when only excreted in traces or not at all a grave prognosis should be given though no signs of uræmia exist.

Chronic Interstitial Nephritis.

Thirty-three cases of the type clinically classed as chronic interstitial nephritis have been under observation. In many of these cases previous to the administration of the phthalein test no accurate idea of the degree of involvement of the renal function could be ascertained even after the most careful clinical study. The phthalein test has proved itself of immense value in revealing the degree of destruction of the renal substance, and has demonstrated itself to be of extreme importance from the standpoint of both diagnosis and prognosis.

In most of the cases of this series the time of appearance has been markedly delayed and the output of phthalein marked-

ly decreased; where the output is lowest, the delay in appearance is most pronounced. The time of appearance, however, is not so important as the amount of excretion.

S. B. G., age 55, Surgical No. 25,174, admitted December 21, 1909, complaining of difficult and frequent urination. These urinary symptoms were dependent on prostatic enlargement, the residual urine amounting to 440 cc. Patient was apparently in good physical condition, well nourished but slightly anæmic. Urine slightly cloudy, acid S. G. 1010, no sugar, slight trace albumin and no casts. Urinary output 2000 cc. and urea ranging from 20—30 gm. for twenty-four hours. The phthalein test was given, a faint trace appearing in forty minutes and at no time was more than the merest trace detected. Repeated subsequent tests yielded always the same result. One week after the first test he began to exhibit signs of uræmia, which gradually increased until deep coma ending in death supervened. Autopsy: Both kidneys presented marked atrophy, neither organ weighing one-third of normal, a severe grade of interstitial nephritis being present. This case is of particular interest because of the fact that the urinary output, the urea, the total solids and the total nitrogen were normal and casts were also absent.

The following is a history of a case in which the diagnosis was perfectly apparent clinically but in connection with which the test proved a striking confirmation as the phthalein failed to be eliminated.

Mrs. W., age 21, admitted November 7th with symptoms of uræmia. Patient had had eclampsia in May, 1909, and had never fully recovered her former health. Suffered from frequent attacks of epistaxis, dyspnœa, puffiness of eyelids and œdema of ankles. On examination marked emaciation and pallor were noted. R. B. C. 1,900,000; Hb. 22 per cent.; high grade of choked disc; B. P. 230; temperature normal. Urine was somewhat decreased, S. G. 1013 to 1019, albumin 1.9 gm. to liter, *no casts,* acetone and diacetic acid positive at times.

The phthalein test was given the day after admission and showed entire absence of elimination during two hours.

Despite vigorous treatment, coma became deeper and death supervened five days later.

Autopsy 3040 showed an extreme grade of interstitial nephritis with a superimposed acute hemorrhagic nephritis.

In the following case the diagnosis was exceedingly obscure until the evidence brought forward by the test was added. Before the administration of the test, nephritis was only one of many possibilities entertained.

Mrs. O., age 47, admitted March 23, 1911. In October, 1910, noted fatigue and dyspnœa on slight exertion, together with slight œdema of lower extremities. In December nausea and vomiting developed and have been present almost constantly since. On examination patient was poorly nourished and showed marked anæmia. R. B. C. 1,500,000; Hb. 1.5 per cent.; W. B. C. 6,000; slight increase in cardiac dullness; apex slightly down and out; slight systolic murmur in pulmonary area; no œdema of extremities. Urine: pale yellow, S. G. 1011, albumin, a trace, *no casts on repeated examination.* B. P. 135. Eye grounds: negative. Although nauseated she was mentally bright and seemed in no imminent danger. The phthalein test showed no output in three hours. Two days later the patient became irrational, dying within forty-eight hours in uræmic convulsions. No autopsy was obtained.

The following case shows even more strikingly the ability of the phthalein test to reveal the presence of nephritis in the absence of any definite clinical evidence being a case where nephritis was not suspected before the administration of the test.

L. G., age 12, admitted March 27, 1911, as an interesting case of diabetes insipidus. The past history contained nothing of importance except that large quantities of urine had been voided for some time and he experienced marked thirst. He was well nourished, not ænemic, and apparently a normal

looking boy. His B. P. ranged from 30—90 mm. Hg. Some thickening of the radial arteries was noted. No definite eye changes. The urine on admission was large in amount 2000-2500 cc., clear, S. G. 1005-1010. *No albumin. No casts.* At this time no suspicion of nephritis was entertained although a trace of albumin had been noted once previous to admission. The phthalein test performed March 28th showed an output of only 7 per cent. for two hours. Three days later only 3 per cent. was excreted. With the exception of the phthalein findings adsolutely no evidence of nephritis were present at this date. A week later he developed headache, and a trace of albumin in the urine appeared. He rapidly became uræmic and died April 9, 1911.

Autopsy: A most intense grade of chronic interstitial nephritis was present, with almost complete disappearance of the cortex. A slight grade of acute nephritis was superimposed.

Chronic nephritis can exist over a long period without recognition, and may even exist in the absence of albumin and casts in the urine. The following is another case illustrating the presence of nephritis in the absence of positive proof, and also the value of the phthalein test in revealing its existence.

F. G., age 71, who had had six previous admissions during the last five years, was again admitted November 7, 1910, for œdema of feet and legs, vertigo and attacks of loss of consciousness. Numerous urinalyses during these admissions failed to demonstrate any anomaly except a trace of albumin at one single examination. An advanced arteriosclerosis and high blood pressure were recorded on previous admissions. The chest was emphysematous, the heart sounds distant. Pulse 52—regular, B. P. 220. Urine, pale, 1012, acid, albumin —occasional trace, no casts. Phthalein examination showed an output of only 5 per cent. for the first hour and 10 per cent. for the second, indicating a severe grade of nephritis. The next day definite signs of bronchopneumonia appeared, and the patient died five days later.

Autopsy 3461. Atrophy of the right kidney as the result of an old thrombosis of right renal artery, with chronic diffuse nephritis on the left side, small granular kidney.

The following case is an example of the difficulty encountered at times in differentiating clinically various forms of toxæmia from true nephritis with uræmia.

S. E., age 55, admitted January 3, 1911, in a drowsy toxic condition. Had a history of chronic bronchitis of long standing associated with dyspnœa. The present illness dated back two months during which time the condition had become exaggerated. Temperature was 99°-100°. B. P. 160 mg. The physical examination of chest revealed a bronchitis and some myocarditis. The urine output was small S. G. 1030, acid, albumin 4 G. to liter, hyaline and granular casts. The physician in charge made a note saying "patient is certainly in uræmia," and treatment for uræmia was instituted. A phthalein test, however, showed an output of 52 per cent. for two hours which indicated a function not markedly impaired. Some days later the temperature rose to 103° and definite physical signs of a pneumonia became apparent. Patient recovered from pneumonia but exhibited myocardial symptoms. We have had another almost identical case of pneumonia in which the phthalein cleared up the diagnosis.

Uraemia.

In 25 cases under study, uræmia has been present. In 16 of these the uræmia was grave, the patients exhibiting nausea, vomiting, drowsiness or coma and in several instances convulsions. In the remaining nine, mild symptoms only were present and had persisted over prolonged periods. Eleven of the 16 cases with grave uræmia died during the attack. *In all of these cases the phthalein elimination was zero or a faint trace only for two hours.* Of the five cases recovering from their uræmia, in two instances the output was 20 per cent., the uræmia being the result of an acute exacerbation of a

chronic nephritis. In two the output was 14 per cent., in both of these the uræmia was precipitated by a double pyelonephritis. The fifth was an acute exacerbation in a case of chronic pyelonephritis in a man previously having had a nephrectomy. This last patient has greatly improved but at present has a two hour excretion of 13 per cent.

In mild cases, exhibiting slight but persisting symptoms of uræmia, the excretion respectively was as follows: 10 per cent. in one, 7 per cent. in 3 cases, a trace in one, 2 per cent. in the other for 2 hours. Four of these died within three months of the performance of the test. Those living are still exhibiting evidences of chronic uræmia, four months having intervened in one instance.

In five cases not exhibiting uræmia at the time of the test but in which the phthalein output was below 8 per cent. for two hours, one excreting 6 per cent. died within two months, one excreting 3 per cent, one month, and the others are still living, one four months, one two months, and the other three weeks, but all are at present exhibiting evidence of chronic aræmia. In two cases not exhibiting uræmia but with a markedly decreased phthalein output, operation with long ether anæsthesia in each instance was followed by uræmia and death.

Miscellaneous Cases.

A large number of miscellaneous medical diseases, having been also studied from the standpoint of phthalein excretion, among the number being 10 cases of lobar pneumonia. Two of these cases exhibited evidences of a mild nephritis during the attack, which was associated with a definite decrease in phthalein output. In both cases the urine was entirely normal one month later, as was also the phthalein output. In pneumonia the output is little if any decreased and bears no relation to the chlorid excretion.

Three cases of persistent albuminuria have shown a normal output. In no diseases other than renal so far studied has a marked reduction of the phthalein excretion been encountered.

The Relation of Phthalein Output to Blood Pressure, to Changes in the Eye-Grounds, and to the Blood Picture.

In the majority of cases of chronic nephritis in which the blood pressure has been high, the phthalein elimination has been markedly decreased but no exact parallelism exists inasmuch as not a few instances have been encountered in which the systolic pressure has been over 200 mm. Hg. and the phthalein output one-half of normal, while on the other hand there have been instances in which the blood pressure has been normal while the phthalein output has been zero or nearly so—the patients shortly after dying of uræmia. While a high blood pressure when present is considered of diagnostic and prognostic value taken in conjunction with other clinical data, yet many patients died of renal insufficiency and exhibited a blood pressure which was normal or practically so. Nor is the blood pressure even when high, increased in inverse proportion to the decrease in renal function.

While in some instances marked changes in the eye-grounds, choked disc, tortuous vessels, hemorrhages, etc., have been present coincident with a very low phthalein output, in many cases even of the most advanced and even fatal nephritis, no changes whatever in the eye-grounds could be detected, the patient at the same time failing to eliminate the phthalein.

Moderate or rather severe grades of secondary anæmia in the absence of disease of the kidneys can be present without any diminution in the phthalein elimination; for instance, two patients, one with 2,500,000 red cells and Hb. 30 per cent, the other with Hb. 30 per cent., eliminated 61 and 57 per cent. for two hours respectively. A dog, with a red count of 7,290,000 and a phthalein output of 41.7 for one hour, was bled 120 cc. resulting in red count of 5,400,000 and no change in phthalein excretion.

Value of Test From a Surgical Standpoint.

Through the encouragement of Dr. Young we have been enabled to study the phthalein excretion in a large series of

cases of urinary obstruction, in order to determine the value of the test in revealing the functional capacity of the kidney in these cases. This is a consideration of grave importance in this connection, since the development of uræmia or renal failure has been responsible for a great part of the mortality following surgical interference.

As a result of obstruction in the lower urinary tract, pathoolgical changes may occur in the ureters and kidneys, dilation of the ureters, varying grades of hydronephrosis, and as a result of the continued high pressure, atrophy of the parenchyma of the kidney. Not infrequently infection occurs with the development of a pyelitis, a diffuse or localized pyelonephritis, or pyonephrosis. The occurrence of these complications is often difficult of recognition and is often overlooked, particularly in the absence of symptoms of renal inadequacy. A large proportion of these cases of urinary obstruction have cystitis associated with albuminuria. The presence of casts in the urine is no contraindication to operation. The urinary output may be normal in many instances, also the urea and total solids, and yet the patient may be on the verge of renal failure and disastrous results may follow surgical interference.

The test has been used in at least 160 cases of urinary obstruction, mostly cases of prostatic hypertrophy. The technique involved in these cases necessitates the use of a catheter, otherwise it does not differ from that described above.

In the majority of cases the test indicates a more or less degree of renal impairment, and taken in conjunction with the clinical condition it is of more value than the study of urine output, total solids, total nitrogen and urea estimation combined.

A marked decrease in the amount excreted invariably means severe derangement of renal function, which may be of either a temporary or permanent character. Under such conditions one should proceed with extreme caution and no surgical intervention should be attempted without further study together

with preliminary treatment. This preliminary treatment as introduced some years ago into this clinic by Dr. Young, consists of drainage by means of a retention catheter or frequent catheterization, together with the administration of large quantities of water. Under this regime repeated functional tests will demonstrate eventually the nature of the derangement, for in true interstitial nephritis, the output will continue low, whereas if the derangement is purely functional or secondary to pyelonephritis, usually improvement will follow as a result of the treatment and will be indicated by a decrease in the time of appearance of the drug and simultaneously an increase in the amount eliminated.

The functional derangement due to infection in these cases is a much more dangerous condition than is the presence of even a fairly advanced condition of interstitial nephritis. The use of the test enables one to select a favorable time for operation. In cases exhibiting a continued suspiciously low output, the use of nitrous oxid gas or spinal anæsthesia is suggested as preferable to ether to protect the kidneys. When only a trace of the drug continues to be excreted, operation should not be attempted at all except in an emergency, even though the patient presents no evidence of uræmia.

In our original paper we stated a dropping phthalein output was a contraindication to operation except in cases of necessity. This decrease in function usually means some change in the renal condition and in most of our cases it has been caused by the development of a pyelonephritis or an exacerbation of an old process. It is obviously wise to wait until the kidneys have recovered from this acute shock before subjecting them to further injury through operation.

As regards the amount of excretion below which one should not operate we do not attempt to draw a definite line. The test simply indicates the renal function and it depends upon the operator what risks he is willing to assume, the probabilities of fatality increasing as the phthalein output decreases.

We do, however, recognize when we have low function which otherwise may be unrecognized and have found that preliminary treatment in most instances whether it be by suprapubic, perineal or catheter drainage, allows a regeneration of function which will be indicated by the test and enables the patient later to undergo the graver operation of prostatectomy with less risk.

The test can be used to equal advantage preliminary to any surgical procedure where it is deemed important to know the true functional capacity of the kidneys.

Technique of the Phthalein Test as Applied to Estimation of the Function of the Individual Kidney.

Functional tests have already demonstrated their great value in this connection. But they have at most been able to determine only the relative working capacity of each kidney and have shed very little light on the absolute functional capacity of each organ.

The phthalein test in association with ureteral catherization has been used in 75 cases of unilateral or bilateral disease, the technique being as follows: In most of these the subcutaneous administration was used. Recently, however, the intravenous method of administration has been employed, whereby the time necessary for observation has been reduced to half an hour, collections being made at 15 minute intervals.

Twenty minutes previous to examination 600 to 800 cc. of water is given to patient in order to insure a free flow of urine. The ureters are then catheterized.

As it is essential to collect all the urine secreted by each kidney during a definite period of time, in order to do accurate quantitative work, a form of ureteral catheter especially devised for this purpose has been used. The flute and catheter of Albarran, No. 6 or preferably No. 7, has been found to be most satisfactory. The catheters which have only side open-

ings and no end openings cannot be depended upon for this purpose.

The catheters are passed up into the ureters to a distance of four inches. The cystoscope is then withdrawn, leaving the ureteral catheters in position. A tape is always tied to the right catheter as a means of identification. A small ureteral catheter is now passed into the bladder and the bladder thoroughly emptied, so that leakage, should it occur, can be detected. A specimen of urine is then collected from each side for routine clinical and microscopical study.

The time of injection is recorded, as is also the time of the appearance of the drug on each side. Starting from the first time of appearance the collection is then continued for one hour following subcutaneous or intramuscular injection, but only for one-half hour when the intravenous method of administration has been employed. The quantity of urine is noted, also the specific gravity. The amount of drug in each specimen is then estimated by the technique described above.

The application of the phthalein test does not complicate or unnecessarily prolong the time of catheterization, for it is necessary, as Albarran has shown, to collect the urine for a considerable period of time if determination of the work done by each kidney as regard to the total solids, urea, etc., is to be relied upon.

Results Obtained With the Phthalein Test in Unilateral and Bilateral Disease of the Kidney.

In normal cases the time of the appearance of the drug from the two sides has been almost always the same and in the majority of cases this has been five to ten minutes following subcutaneous and three to five minutes following intravenous. The time of appearance of course will vary somewhat with the rate of urinary secretion. Normally the amount excreted by each kidney will be practically the same.

When one kidney only is diseased, the time of the appearance of the drug is delayed on the diseased side and the

amount excreted is not only relatively but absolutely decreased. The amount of delay in the time of appearance is comparatively of little value. Reliance is only to be placed upon the quantity excreted during a period of one-quarter, one-half or one hour, depending on the method of administration.

Although in the majority of these cases of unilateral disease the combined output is equal to that of two normal kidneys, the greater part of the excretion is shown to be performed by the healthy kidney. In proportion to the decrease in function on the diseased side, approximately there is a proportionate increase in the function on the healthy side. In such cases following nephrectomy the remaining kidney eliminates after the lapse of two or three weeks an amount of drug which is normally excreted by two healthy kidneys. In all cases studied the output from the remaining kidney has been greater than the combined output from the two kidneys prior to operation.

While the total urea from the combined urines is no true index of the functional activity of the kidneys, the comparative urea output from each kidney is of decided value. The same amount of urea is presented to each kidney for elimination, and therefore it is possible to estimate to some extent the proportionate amount of work which each kidney is performing. Barringer has pointed out that when the output from one kidney is four times as great as that from the other, it is safe to remove the diseased kidney, provided that the urine from the opposite side gives no indication of disease. It is of most value when there is a marked disproportion from the two sides. This test, however, has its failings, as this proportion does not always exist. Again, the urea determination indicates only the relative amount of work that each kidney is performing and as the exact amount of urea present in the blood is not known, the test shows only the relative activity of each kidney and not their absolute functional activity.

Again, it affords no indication as to whether the kidney is working at its ordinary capacity, or as to whether the reserve

force is called upon and the kidney working at its maximum, and therefore unable to withstand any additional strain.

The inefficiency of these methods have necessitated the introduction of the more recent methods of estimating the functional ability.

A striking parallelism exists between the relative amounts of phthalein excreted and the relative urea output for any period, but the phthalein has an additional advantage inasmuch as it indicates not only the relative excreting capacity of the two kidneys but furnishes an approximate idea of the absolute capacity of each kidney.

In all 100 cases of unilateral or bilateral renal diseases have been studied in conjunction with ureteral catheterization, the series comprising cases of renal calculi, renal tuberculosis, non-tubercular infection, hypernephromata, hydronephrosis and nephroptosis, ureteral calculi, ureteral strictures, hæmaturia, and cases of polycystic kidney and a few miscellaneous cases.

In bilateral disease it has been found possible to determine the individual function (absolute or relative) of each kidney. It is in this class of cases particularly that the shortcomings of other functional tests have been most apparent, as one kidney may be doing twice or three times the amount of work of the opposite kidney and still be unable to assume the additional work of the other kidney. It may be doing the major part of the work at the expense of all or nearly all of its reserve power, but the phthalein test determines whether the kidney has a functional capacity which is normal, less than or greater than normal and to what degree. In two cases of double renal tuberculosis in which the amount of pus from each side was practically the same, the test permitted it to be determined that one kidney in each instance had a function greatly in excess of the other, indeed sufficient functional capacity to allow of successful nephrectomy, marked improvement in general condition occurring subsequently in each case.

The test has been used simultaneously with cryoscopy,

phloridzin, indigo-carmine and the polyuria test of Albarran. No particular advantage was added by combining with one or all. Indigo-carmine and phenolsulphonephthalein can be combined as follows: Following the appearance of phthalein after injection, 5 cc. of 4 per cent., indigo-carmine suspension is injected into the gluteal muscles and the time of appearance in the acid urine noted. While the amount of phthalein excreted can be estimated with a fair degree of accuracy in the presence of indigo-carmine by rendering the urine alkaline and boiling, on the other hand the amount of indigo-carmine excreted can be estimated after acidifying with HCl, or $H^2 SO^4$, but at the best, only roughly and occasionally not at all. When the two tests are used simultaneously the whole test is complicated with the introduction of no advantages and some disadvantages.

In the following case with a painful kidney, with old healed pyelonephritis, various functional tests were combined, urea, phloridzin, cryoscopy and polyuria.

LEFT.	RIGHT.
325.	80 cc.
1010 S.G.	1009.
Urea 40.6 cgm.	Urea 8 cgm.
Phthalein appeared 7 min.	Phthalein appeared 8 min.
Excretion 25% for 1 hr.	Excretion 8.8%.

PHLORIDZIN TEST—INJECTED 5 mg.

Sugar appeader in 15 min.	Trace in 35 min.
1.95 gm. in 1 hr.	

CRYOSCOPY—URINE FOR FIRST 20 MIN.

44 cc.	0.09.	22	-0.15.

POLYURIA TEST

Left.	Right.
44	22
120	22
158	41

Urine collected in 20 minute periods.

Comparison of Phthalein Excretion With Autopsy Findings.

An opportunity was afforded in 21 cases of comparing the phthalein excretion with the pathological condition of the kidneys at autopsy.

In the cases in which the phthalein excretion was modeately decreased the kidneys showed moderate pathological changes. In those cases in which no phthalein was excreted or only a small amount, extensive and severe renal destruction was invariably found.

In one heart case showing an excretion of 43.3 per cent. for two hours, which is a definite but moderate reduction, only a passive congestion was found. That this condition can interfere with function other clinical cases seem to confirm.

In one case double polycystic kidneys were encountered, although the phthalein excretion was normal. The patient exhibited no symptoms from this condition during life, death being due to pneumonia. The fact that polycystic kidneys may be present for a great many years without symptoms and also that they are usually unexpectedly discovered at autopsy in patients dying from other conditions is good proof of their functional efficiency.

Conclusions.

1. The absorption of phenosulphonephthalcin following injection into the lumbar muscles is better than the absorption from the gluteal injection, while the latter is superior to subcuteaneous injection.

2. Administration into the lumbar muscles is the method of choice.

3. The renal cells display a striking specificity in the excretion of phenolsulphonephthalein.

4. The phenolsulphonephthalein as used by us has many advantages over all other functional tests so far proposed.

5. It is better adapted for use as a functional test than any other drug previously employed for the same purpose, on account of its early appearance in the urine and the rapidity and

completeness of its elimination by the kidney and the reliance to be placed on its findings.

6. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

7. It is of immense value from a diagnostic and prognostic standpoint in nephritis inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety.

8. The test has proven of value not only in diagnosing uræmia from conditions simulating it, but has also successfully indicated that uræmia was impending when no clinical evidence of its existence at the time was present.

9. The test has proven of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output, total solids, urea or total nitrogen, and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction following the institution of preliminary treatment is strikingly indicated by this test.

10. In unilateral and bilateral kidney disease the absolute amount of work done by each kidney as well as the relative proportion can be determined when the urines are obtained separately.

"Determination of the Renal Function by Means of Phenosulphonepthalein and Its Value in the Diagnosis and Prognosis of Kidney Affections." Dr. John T. Geraghty, Baltimore, Md.

Dr. A. J. Crowell: *Mr. President*: I acknowledge my inability to discuss this paper. I simply wish to say, in addition to what the Doctor has said, that it is one of the very best functional activity tests we have. It is, as he says, easily given, and the output very easily read.

This instrument that Dr. Geraghty shows you is one of his own get up, very cheap, and it is a test that every general

practitioner can use. I have had lately three nephrectomies that I did fearlessly, after having given the test, when really one kidney only was functionating. There was some output from the diseased kidney, but its functional activity was very slight. The opposite or healthy kidney was quite good, eliminating, I might say, almost the normal that the two should do. When you have a diseased kidney your ureteral catheters and your phenosulphonepthalein tests put you in a position to decide definitely as to advisability of doing nephrectomy and as to whether one or both kidneys are diseased. It is of very great value in prostatectomies. When it comes to operating on old people you want to be sure that your functional activity is perfect. If a man's general health is good, the output of the kidney good, then the age makes but little difference, insofar as the outcome of a prostatectomy goes.

I operate on a man seventy-five or eighty years old fearlessly, if the functional activity is good, and when it is good I might say we never lose a case following a prostatectomy. If the general health is all right, the lungs and kidneys are in good shape, you can do a prostatectomy almost regardless of age.

I want to thank Dr. Geraghty heartily for this most valuable paper.

Dr. Wm. Allen, Charlotte: *Mr. President*: I should like to ask, in the cardio-renal cases with edema, whether or not the rate of absorption of the drug is constant enough to be neglected?

And advance in the diagnosis of renal function is more than welcome.

Dr. Geraghty closes: When there is odema present, naturally the absorption is very slow, therefore we cannot tell whether the renal function is decreased or not, owing to the faulty absorption; furthermore, the congestion itself will give reduced function. That is something which has to be taken

into consideration. When the odema disappears and the compensation is re-established, if the phthalein eliminate shows marked decrease, one can be certain that permanent renal changes exist.

Wednesday Evening.

Dr. Julian: *Mr. President*: The Committee on the President's Address is ready to report.

COMMITTEE ON PRESIDENT'S ADDRESS.

We, the Committee on the President's Address, beg to make the following report:

That we have carefully reviewed the suggestions contained in the very able address of our President, Dr. C. M. Van Poole, and we commend the stand that he has taken for advanced medicine and for a higher preliminary education for practitioners of medicine.

In reference to that part of the address relating to a provision whereby "Physicians resident in counties where there is no active local organization may become members of the State Society," we do believe that this plan which differs from the present requisites for membership would jeopardize our organization in that it would encourage disintegration of existing County Societies.

C. A. JULIAN,
M. H. FLETCHER,
E. T. DICKINSON.
Committee.

Report adopted without discussion.

The President: *Ladies and Gentlemen*: It gives me great pleasure to introduce to you,—not to introduce to you, either, but to name the speaker of the evening,—Dr. Templeton, who will now deliver the annual oration. (Applause.)

THE PHYSICIAN'S SILENT INFLUENCE.

Dr. J. M. Templeton, Cary.

A stranger reading the glowing description of the health resorts that dot this splendid old Commonwealth of ours, stretching as they do from the ozone ladened breezes of Morehead and balsamic air of Pinehurst, to where the salubrious mountain atmosphere circles about the sun-kissed peaks of Roan and Clingman and Mitchell, (to say nothing of Vademecum Spring and Mrs. Joe Pearson's Remedy), might well conclude that he had found a land of perpetual health, a land where there were no bruises to bind up, no wounds to be healed, where death never came, and it would be a waste of time to look for a Doctor. Your presence here tonight, coming as you do, "from the sandshining shores of Hatteras and from where the blue peaks of the Alleghanies look down into the chambers of the setting sun," is proof "strong as Holy Writ" that such a conclusion would be erroneous, for where you "pill peddlers" gather, where you "sawbones" assemble, there you will find aches and pains, sufferings and sorrows, coffins and graveyards and all the solemn paraphernalia of death. Not that you cause these things, but where they are your mission lies and you are found at the post of duty. A mission it is filled with trials and tribulations, success and failures, triumphs and defeats, censure and applause in about equal measure. It is a life calling rich in rivalries and jealousies and heartburnings, and sometimes bitterness and hatreds, because in your "battle for bread" you have to contend with osteopaths and homeopaths, and compete with herb doctors and old women and witches and rainmakers, and sometimes "patience ceaseth to be a virtue.

You rise up early and sit up late that you may heal the tramp and minister to the dead beat for "I thank yer Doc, till

yer better paid" and "often, Oh how often," with the thank omitted. You spend your money for that which is not bread and your labor for that which satisfieth not," in that you have among your patrons those who seem to think the honor and glory of being spoken of in mellifluous accents as "our family physician," ample compensation for all the time and trouble you may give them and their families. Yet expect you out of that compensation to put up very liberally in good hard dollars, "current with the merchant," for the church, the orphan asylum and every other form of charity under heaven, including your dog and horse and wife and babies. Despite all these draw backs and obstacles, handicaps and hindrances, I believe there is a place in the social economy of to-day for the honest, upright Doctor, and in proportion to number no other class has more influence, or is more potent in "shaping the destiny of states and empires" than that composed of the modest, unassuming medical men of a country, the influence they exert, is however, seen or felt, rather than heard, it is a silent influence. Yet it is the silent influences that are mightiest in solving the problems of time and life, just as it is the silent influences in nature that work the most wondrous results. Thus we see silently bursting from the seed, the bud, the leaf, the fragrant, beautiful flower, then the "ripened grain and full ear in the sheaf." Reverberating thunder is harmless, impotent, the silent lightning shivers the mightiest oak. Silently from moisture comes the sparkling dewdrop, and heat pressure upon carbon give us the dazzling brilliance of the diamond. We see how all things are held together by atmospheric pressure and the laws of gravitation, yet with such exactness and precision that world upon world, and planetary system upon planetary system, whirls round and about us at incredible speed, many of them appearing and disappearing after cycles of hundreds, yea, thousands of years, yet all moving in perfect "silent harmony." We see how silent influences ascend all heights, know no bounds or depths, span chasms, pervade all

space and permeate all nature. I remember standing once near the Straits of Fuca, looking westward over the mighty Pacific. I saw it swell and recede from shore to apparent sky as far as the eye could reach; far to Southward Mt. Ranier lifted his mantle of eternal snow; behind me the placid water of Puget Sound shimmered in the afternoon sun, while the rugged mountains, cleft here and there by pleasant valleys, crowded each other to the water's edge. As the eye rested upon the sublimity and grandeur of this scene the mind reverted to prehistoric time, when from deep down in earth's bosom, silent influences upheaved strata upon strata of solid rock, not only all over our own great country but the whole earth. Then as the waters receded the disintegration of mountain and hill filled up and fertilized valley and plain—made possible the sustenance of teeming millions and a place for this magnificent civilization of ours.

Even as silent influences shaped and fashioned the physical world, so I believe God, working thus has been gathering here under the shining folds of Old Glory all that is brightest and best in all the civilizations of earth, and is blending it into something grander and more beautiful and enduring than the world has ever known.

You may read our high destiny in the richness of our agricultural products, so vast, so varied, so abundant we harvest fabulous wealth every month in the year; or the output of our factories so enormous it taxes the transportation facilities of the continent; or our commerce, which borne by steam and sail, touches every port of earth. In education, in invention, in literature, in the arts and sciences, in all that goes to make up progress and advancement we are taking our place in the "foremost files of time."

In this steady forward movement of our country and the world, the silent influence of the medical man has made its impress all along the ages, and unheralded and unsung, worked out problems that have modified the whole current of human

life, and helped to carry the race to higher and grander planes of civilization, though often overshadowed and obscured by matters trival in comparison. Thus historians have made the Piedmont Campaign of Francis I. immortal, by saving from the wreck of his inglorious defeat at Pavia, the epigrammatic message to his cruel, Medicean, queen mother, that "All is lost save honor." Yet upon that campaign one of his modest surgeons, Ambrose Pare; was working out a method of controlling hemorrhage by ligature that makes possible much of the wondrous surgery of to-day, and the influence of his work will go on down a heritage to coming generations as long as red blood flows.

The darkest days of the American Revolution were perhaps in the winter of '76 and '77, when England was massing her power to crush the widespread rebellion in her colonies over the Sea. History is replete with the deeds of the soldier, statesman, diplomatists, lawyers and financiers of that period. The two events that did most to strengthen freedom's cause and keep alive in patriot bossoms were battles of Trenton and Princeton. Only scholars know it was a Scotch surgeon, Hugh Mercer, who had dressed wounds on Culloden's fateful field, that lead the column of assault at Trenton, and it was he who at a war council there a few days later suggested the daring night attack on Princeton. He was mortally wounded by a clubbed musket, in the close hand to hand fighting there the next morning, while endeavoring to rally his column which had been shattered and repulsed by a bayonet charge of British Veterans. One of the brightest names in all the annals of the Southland is that of Stonewall Jackson. A very genius of battle, he, whose famous "foot Cavalry" made the Southern armies almost invincible while he lived. For successful strategy and daring his campaign in the Valley has never been surpassed, if equalled, but when the battles of Cross Keys and Front Royal and Port Republic are forgotten, Jackson's name will live in the fact that on this campaign he issued an order

that all surgeons captured in the discharge of duty should be paroled, treated as non combatants. As Southerners we glory in the fact that it was a Confederate General who for the first time in the world's history of war, adopted a policy so beneficent and humane, as physicians we know that order was issued through the silent influence of Jackson's surgeon-in-chief, that courtly gentleman and peerless surgeon, Hunter McGuire.

A few years ago the world was startled by the prowess and courage of the little brown men, "Yankees of the Orient" they've been called, as emerging from their sea girt home they swept like a tornado up the Manchurian Peninsular. Before their resistless onset "Cossack and Russian reeled from the saber stroke" and their all conquering legions scattered the proudest regiments of Muscovy as autumn winds the brown leaves of the forest. Over and through the impregnable defenses of Port Arthur they swarmed, and Sha river and Lio-Yang and Mukden became historic like Waterloo and Balaclava, and Gettysburg, and Oyama, and Nogi, and Kuroka, went to take a place in war's Valhalla beside Napoleon and Wellington and Washington and Lee and Grant.

But when the "Lust of battle" past and we came to study this mighty conflict philosophically and sanely, we found there was much more to learn from it than the effect of concentrated gun fire—much more to admire than the courage that rushed 203 Metre Hill, or burst through the barbed wire defences of Fort Ki-Kwan.

It was the wonderful scientific work of the Japanese Medical staff, that almost unnoticed, kept this vast array in health and strength, through all these strenuous campaigns. Pushing ahead of the marching columns, they analyzed the water, placarding it as healthy, or unhealthy, for the soldiers' protection. Rigidly inspecting his food, and enforcing the details of scientific hygiene and sanitation, they for the first time in

the world's history reduced the death rate from disease below that from the missles of war.

This too despite the fact that they crowded up to the firing line and with "first aid packages" staunched hemorrhage and dressed wounds, and in the great battle of the Sea of Japan ordered every "Jack Tar" to bathe and don sterile linen, as the ships cleared for action, yet with all these efforts to conserve life, the death rate from shot and shell broke the world's record, and was greater than that from disease. It is not alone 'mid war's alarms the silent influence of our profession is felt. Doubtless some of you are already planning to view from the Golden Gate the celebration of the opening of the Isthmian Canal, that gigantic work of engineering, that will place our country on the highway between the Occident and the Orient, convert our Mexico Gulf into a Mediteranean of the West on whose shores will arise kingdoms greater than Greece, empires mightier than Rome, because to their highest stage of development will be added all the marvelous progress and wondrous achievement of our own matchless civilization.

Stupenduous as are such works as Culebra Cut and the Gatun Dam, they were only made possible after the quiet labor of Dr. Gorgas and his colleagues had transformed the "graveyard of the white man" into the wholesome, all the year round health and pleasure resort of the Panama of to-day. Just here we might extend our theme to Cuba, regenerated, to Porto Rica, the Philippines, to the work among the fisherfolk of Labrador, to the struggle with Trypano-Somiasis (the Sleeping sickness) of the Dark Continent, or the redemption of our own beautiful Southland from the ravages of Hookworm. What a brilliant array of silent workers pass before the mind's eye at the mention of these names. Dr. David Livingston, Wilifred T. Grenfel, Joseph Lazear, Charles Wardell Stiles and a host of others. These are the striking instances of this silent influence that towers above the common level, as Everest above the mighty Himalayas, and I pass on

to point you for a moment to that wider sphere, where the Budds and Strudwicks, and Hines's and O'Hagan's and Warrens, and Brevards, with myriads of unknown and unnamed associates. are exerting the silent influence that is so powerful in shaping the destiny of the race. Men who ride through the silent night, o'er winter's snow, mid summer's dust to cool the fevered brow of the pain racked child, to minister in the "Holy of Hollies" of the home, when the mother "feels for the first time her first born's breath," or sit helplessly by when the last word is spoken, the last kiss imprinted and the life current is on the ebb tide. It was men of this type old Patrick Drumsheugh had in mind that bitter winter night in Old Scotland, when under the "black firs with their icy burden" he prayed Almighty God—"dinna be hard on Weelum McElluire for he's no been hard on anybody in Drumtocty—Be kind to him as he's been to us a' for forty years. We are a' sinners afore Thee. Forgive him what he's dune wrang and dinna cuist up to him. Mind the foulk he's helpit, the weemen and bairnes, and gie him a welcome home for he's sore needn't it after a' his work."

Those true to the type that inspire such prayers are always everywhere all round gentlemen. They realize that the key to, the measure of, a man is his thought, "as he thinketh so is he," hence their thoughts dwell not mid the mire and shine of earth, but are ever turned skyward, to things high and pure and clean and noble. No low, vulgar, unclean words pass the lips of such, they are foes to all that is venal, base or dishonorable. Temperate in all things, true to the marriage vow, they live not alone for gold and the sordid things of life, but for truth and right and principle and "sweet charity." Be not deceived some such there are in the world of medicine to-day, they are members of no particular school, or cult, or sect or creed, the product of no special soil or climate, no geographic or political division of earth can claim them as its own. I recall how on a Western trip I was im-

pressed with the interest taken in, and questions asked by my better nineteenths, in regard to the boundary lines separating the various states in which we traveled. When we crossed the Ohio they said to her we were then upon the "Dark and Bloody Ground" of old Kentucky; and when the Mississippi's turbid flood rolled behind us they told her the waving corn that emeralded the landscape on either hand grew upon Missouri's soil; when we passed beyond the sheeny, shining, green waters of the Flathead, it was explained to her that we were then 'mid the fair fields of Idaho, and there stretched before us all that "golden country on the sweet Pacific's side." But the domain of scientific medicine knows no such limitations, recognizes no such boundary lines. The educated gentlemanly physician is your true cosmopolite, it matters not whether he domicile beneath the lion crested ensign of George V, under the yellow dragon of the "Celestial Empire," or have his home shadowed by the starry flag of our own great republic.

His influence and sphere of action is wider than any or all of these. It reaches out to wherever pain is to be allayed, suffering assuaged, or health guarded, it is a battle with the ghastly "King of Terrors" who garners his harvests alike from the icy fields of the North and the lands of everlasting Summer.

THE PRESIDENT: *Gentlemen*: The Annual Essay will now be read by Dr. S. M. Stevens of Monroe. (Applause).

THE RELATION OF THE SPECIALIST TO THE GENERAL PRACTITIONER.

By Dr. S. A. Stevens, Monroe.

Progress in industrial and economic lines has led to the division of labor. Our industrial system has become so complex that work that was formerly done by one man is now performed by ten. Underlying this is the basic principle of concentration both of the mental and physical faculties. This tendency to division of labor has entered the field of medicine and has led to the development of the specialist.

It is my purpose in this paper to consider the effect of this tendency in modern medicine.

The various specialists, concentrating their energy, thought, and experience along certain lines, have, by their patient, untiring efforts, contributed much to the sum total of medical knowledge. I think there is no doubt that the development of the specialties has led to advancement along their various lines and has decreased human suffering. It is true that many mistakes have been made. Many needless and perhaps harmful operations have been performed; many theories have been advanced and experiments performed which promised brilliant results, only to prove will-o'-the-wisps when put to actual test. Many false paths have been blazed only to be abandoned, many a tonsil and many an appendix has been removed without any benefit save to the pocket of the operator. However, human progress along all lines has been marked by mistakes. Out of the many theories advanced and the rubbish of medical thought, some valuable truth is discovered which is of lasting benefit to the medical profession. Even if the pocket of the patient is lighter and that of the specialist heavier in separating the true

from the false, the end perhaps justifies the means. I do not mean to cast reflections on the honesty and sincerity of specialists as a class. There are doubtless specialists whose only ambition is to make all they can and give as little as possible in return. But when you find one of this type, you will find that he is by no means lonesome but has plenty of congenial company among the general practitioners. Where the specialist robs the dear people in lump sums, his counterpart among the general practitioners does the same by the more gradual and less apparent method of making unnecessary visits. In one case the sufferers are aware of the skinning while the operation is in progress; in the other it dawns on them more gradually but none the less surely. I am glad to believe that there are not many of these licensed, unbranded charlatans in our ranks and it is to be hoped that they will be gradually weeded out.

There is a tendency in human nature to find, or to think we find, that for which we are looking. This tendency gives rise to one frequent source of error on the part of the specialist, unless he be endowed with good judgment or is what we term well balanced. The fact that the mind is concentrated on the diseases incident to certain organs, naturally leads the specialist to attach undue importance to the derangement of these organs. In other words the very nature of his work has a tendency to "*narrow*" the specialist.

This *narrowing* process has extended to the ranks of the general practitioner. The modern physician, because of his reliance on the specialist, fails to inform himself as well as he should. He fails to observe symptoms as carefully as he should and to study his patient thoroughly. The findings of the microscopist are of value in clearing up doubtful cases and in confirming a diagnosis, but to rely on this alone or to any great extent will, to say the least, cause oftentimes dangerous or fatal delay. Especially is this true since many of the physicians in the country and smaller towns have not convenient

access to microscopists. Nor have they the time to become sufficiently skillful in the use of the microscope to accomplish much, especially along pathological lines. The modern physician is hardly the equal of his predecessor of 25 or 50 years ago when he has only his patient before him, and can't avail himself of the services of the various specialists. He has not cultivated his power of observation so well nor studied symptoms as closely. This failure of the general practitioner to inform himself properly along the lines of the diseases of organs treated by specialists begins in the medical student and continues after he begins practicing. To illustrate, we will take diseases of the eye, ear, nose and throat. Just enough study is reluctantly devoted to this branch by the average medical student to enable him to pass his examination in college and before the State boards, and to accomplish this, he relies more on what is known as cramming than upon a thorough study of the subject. In other words, to use a homely phrase, he gives it a lick and a promise and never fulfils the promise. It too often happens that the ignorance of the general practitioner is the cause of fatal delay in sending his patient to the proper specialist. The eye specialist frequently finds an iris permanently adherent because the physician failed to diagnose the trouble and make a few timely applications of atropine.

The surgeon is frequently confronted with an almost hopeless surgical condition simply because of the ignorance of the physician or his lack of backbone in insisting on calling in a surgeon contrary to the wishes of his patrons. It is the duty of the physician to acquire sufficient knowledge of the more common and dangerous diseases treated by the specialist to enable him to either handle the case himself or to call in the specialist before it is too late for him to remedy the condition. Again, this ignorance frequently leads the general man to refer many cases to the specialist that he could first as well treat himself. By so doing he subjects his patrons to a needless expense, bothers the specialist with a lot of frivolous cases,

with which he probably has neither the time nor inclination to concern himself and loses fees that are justly his.

As to the relations between the specialist and general medical man, it goes without saying that they should be friendly and governed by the same ethical rules as obtain between physicians generally. There should be no big *I* and *little you* on the part of the specialist, nor should the physician saddle the specialist with all the failures that will sometimes necessarily follow treatment. If the result of treatment by a specialist is not what the physician has led his patient to expect, the temptation is great to attribute this to lack of skill of the specialist, in order to keep his hold on his patient's confidence. In advising a consultation with a specialist, the physician should not do too much prophesying as to the outcome. In fact this rule is a good one to follow or rather not to follow in our own cases. Prognosis is nearly always involved in doubt. Especially is it very doubtful as to absolute cure in many cases. Nor is it necessary to be prophets of evil. We can nearly always promise a certain measure of relief from a specialist, if no more, or we can at least verify or make certain a doubtful diagnosis and this will often satisfy our patients. If the true condition is explained to them—what the trouble is and what may be expected from treatment they are better satisfied even if but little amelioration of their troubles results.

Again, the physician should not send a patient to a specialist with a cut and dried treatment already mapped out, unless the indications for such treatment are absolutely of general acceptance. If the patient is expecting a certain line of treatment, he will naturally be disappointed, either with his physician or with the specialist, unless a lot of skillful explaining is done. I am trying to convey the idea that the specialist should not be hampered in following his own judgment as to diagnosis and treatment by erroneous ideas and mistaken impressions implanted in the mind of the patient by the physician.

The very fact that the specialist is a specialist is presumptive evidence that his opinion of a case and advice as to treatment is more apt to be correct and should be given greater weight than that of the physician.

Perhaps the best plan is simply to tell the patient that the case is one that requires the services of a specialist. Give the specialist the history of the case and make known any idiosyncrasies of the patient and give any information that the specialist may ask you for, but be careful not to volunteer too much either to patient or specialist lest you show how woefully ignorant you are. Don't send a patient to a surgeon with the idea in his mind that he must be operated on at once. The surgeon may think it wise to wait a while or possibly not to operate at all and in this case he must either disregard his own judgment or put the physician in a bad light, a thing which no specialist wishes to do when a case is referred to him. It is best to tell them that the case is one for the surgeon to pass judgment on; tell them to go to a hospital and call a surgeon. Try to disabuse the mind of the patient of the idea that a hospital is a butcher shop or slaughter pen, an idea quite prevalent in some localities. Tell them it is a place where they can get the proper medical treatment and nursing and where they can be operated on in case it becomes a necessity.

A few words as to fees. The expenses of preparing to be a specialist are burdensome. In the first place, the specialist takes or should take the general medical course.

The parts of the human body are so closely related, the effect of the derangement of one organ on the others is so great that he who is conversant only with the diseases of one or two organs is not properly fitted to treat them. Hence a thorough foundation in general medicine and a few years general practice are of almost absolute importance in fitting one to become a thorough specialist. Add to this the cost of special preparation and the necessarily heavy running expenses in the shape of special instruments, office equipments, etc., and you have a

basis for the larger fees demanded by the specialist. In some sections of the country, especially in the north and west and in the larger cities generally, there has arisen what is known as the commission system. That is to say, the specialist collects large fees and gives the practitioner a certain part of them in return for sending patients. It is a case of you tickle me and I'll tickle you. I speak of this practice only to condemn it. By the time the general practitioner charges a legitimate fee for his services and the specialist adds his on that, the pocket of the average patient is sufficiently depleted. A double bleeding in addition to this is neither just nor warranted by ethical practice. The physician should make his services valuable enough to the patient to charge a reasonable fee. If he takes the patient to the specialist, he should charge for the time he is absent from his work and collect it himself, and not resort to the subterfuge of collecting it without the patient's knowledge.

In this matter as in everything else, each tub should stand on its own bottom.

TRAITS AND TAINTS.

H. D. Stewart, M.D., Monroe.

Since I have gone into a more intimate study of this subject I wonder at its vastness. No abbreviated treatment will suffice to give it more than scant consideration. Necessarily I must treat it only in part.

Traits.

Certain habits, customs and natural tendencies may be attributed to nations or to races and these may be called national traits or racial traits.

To individuals we attribute certain distinguishing characteristics and these may be called family traits or individual traits.

Every nation has its characteristic racial traits and by these traits is largely determined its place among the nations of the earth.

The Jews, the Chinese, the Italians and the Negroes are familiar examples of the perpetuation of racial traits.

The Jew from the beginning of his creation as a distinct race has preserved his physical and mental characteristics, his habits of trade and of occupation.

The Jew does not farm; hence he has no ultimate industrial basis.

He is dependent upon other races for the real needs of life. The typical Jew has his Roman nose, his dark hair, his small dark eyes, indicating cunning and shrewd business policy. He is a money maker. He is a natural trader. You may take the child of the Jew, of the Polish or Russian Jew, if you please, and set him down in a strange land. Though he may never have seen his forefathers, when he becomes old enough, he will begin to sell second-handed clothing marked up. This has become a racial habit.

"Dis suit of glothes gost me twenty dollars. I sell it to you for vifteen dollars. See de mark dere on it? It cheap, you cannot buy it anywhere for dot money. It fits you fine. Take dot suit?"

Lieing seems to be a national or racial trait of the Jewish merchant or trader. It is natural and he can't help it. It has been handed down from the fathers.

There are not many criminals amongst the Jews, except, perhaps in the life of the Ghetto of New York, Chicago and other large cities. Here they resort to every known device, legal or criminal, fair or foul, in their money-making and money-getting traits.

There are also not a few Gentile merchants and traders who will lie about their wares. Of course all these Jewish and Gentile lies are supposed to be white lies. But some are black.

In their native lands the Jews have been subjected to very rigid government. Their rights and their liberties have been restricted by the reign of absolute monarchies, whose delight was in the death of the righteous. They have been oppressed, murdered, massacred, and deprived of property rights and of the possession of civil liberty. So when they come to America, the land of civil liberty and civic opportunity, they are naturally fearful lest they offend the powers that be. He does not often figure in the police court.

The Jew has many noble traits of character. Though he is a man without a country and has the uttermost parts of the earth for an habitation, yet he possesses marked home virtues. He loves his foreparents. He has a fellow-feeling for the members of his race and a tender remembrance for the land of his nativity.

The Italian race are of a sturdy, stocky build. They are of that physique, physiognomy, habit, custom and character which distinguish the Caucasian races of the Southern climes.

Having been born in a sunny land of fruits, if set down or

landed in a far country amongst strange people, they will set up fruit stands and sell peanuts and the banana.

If higher classed, they will organize bands and furnish the best of music to music-loving America. Or they may produce the leading artists or give training to the stars of the Metropolitan Opera House or the Manhattan.

If descended from criminal progenitors, they may constitute the Black-hand or the Mafia or the Cammora.

Music is a national trait in the homes and in the public parks and palisades of Italy.

The Italians, the Germans, the Poles and the Hungarians are the greatest musicians of the nations. Why? Because for generations music has been compulsory in the homes and in the schools.

If you import a little Chinese and set him down in America, as soon as he becomes old enough he will start a Chinese laundry and begin to take in collars and shirts. Or, if he is in a large city, he may open a store of Occidental Curios.

The Negro race have certain traits of character that will always hinder their becoming a strong independent race. They cannot live without the white man's government. They do not require nor respect virtue of their women. They have no moral base, no sense of gratitude, no regard for a promise, no love for truth and honesty. Stealing, lieing, loafing and promiscuous social intercourse have long since sealed their social destiny.

A Negro preacher who was very devout, who was held in great esteem by the members of his race and was especially beloved by the women of his flock, once asked me for work at brick-laying. He voluntarily made an engagement with me to begin work the next Monday morning at 8 o'clock. I did not see him again for three months. The Sunday love-feasts must have beclouded his recollection.

The Negroes like to go in crowds. Their delight is in

funerals, wakes, campmeetings, festivals, picnics, watermelon parties and drunken brawls.

I don't know that I have ever seen a negro that didn't like whiskey and watermelon.

When a race, in whose individuals the animal nature predominates any way, are crowded together sixteen to the room, there can be no virtue, no respect of the marriage vow. It is necessary to have social segregation and separation to preserve any race or people. Crowding breeds corruption.

The Jews, the Italians, the Chinese and the Negroes are very prolific. The Chinese are so prolific and the population so dense in their native land that life is very cheap. The Negro's life is not worth very much. Overproduction of human beings makes cheap human beings, whether it be in the crowded tenements of our great cities, amongst the many thousands who are struggling for existence:—or if it be in the family of seven daughters and none especially beautiful or attractive.

It is harder to win and to wed the only daughter than it is to secure some one of seven. In the one case the parents think, "We have bestowed much upon Sarah, it is hard to give her up." In the other case the parents think, "Our supply is greater than the demand and you may have one of the seven below cost, if you will take her to-day."

Whenever the sociological limit is exceeded in the production of human beings there is likely to be one or more children in the family that seem to have no place in the world, no useful disposition, no effective purpose in life, no future, no independent existence. This means that those who use up and wear out and destroy human beings for purposes of commerce, for money-making and for various selfish plans, will take advantage of the excess of humanity to set a low price in money on the unfortunate surplus.

For boys and girls, men and women, your children or mine,

are going to take their places in the world according to the decrees of the law of supply and demand.

Individual Traits.

In family traits we find the chief strength or the chief weakness of every individual. It is absolutely necessary in making a correct estimate of a person for any purpose, to get his family history, moral, mental and physical.

If I had to hire a bank cashier or a man for any position of great trust, I should want to get the following data upon which to base my judgment of the risk: Any rogues in the family? Have his paternal and maternal ancestors been scrupulously honest? Have there been any gamblers in the family (any who lived by games of chance or got money unscrupulously) from whom he might have inherited the gambling instinct? Have there been any extravagant high-fliers in the family who lived beyond their income? Have his people always paid their honest debts or is he descended from a long line of deadbeats?

Is he descended from a line of drunkards on either side of the house? If so, does he take his character and his characteristics from the drunken ancestors?

Mark Twain said, "Training is everything." So it is, but it must include birth. It must begin four generations back and include blood and breeding, if it is to make the perfect specimen.

If it is necessary to know the pedigree of a horse, a cow, a hog or a dog, it is so much more necessary to know the pedigree of a human being with whom you are to have dealings that may affect and determine not only your business fortune, but also your eternal welfare and that of your family.

I have known mothers who were very anxious for their daughters to learn music. But the daughters had no talent for music. The mothers should, so to speak, have planted the germ of a great musician long before their daughters were born. The mother who has no talent for any particular art

may commence a generation back and breed up to an artist. If she will read musical history, read the stories of the lives of great musicians and go to hear the great artists, she will making lasting maternal impressions along this line and her unbegotten or unborn children will have nature's gift of musical talent. The mother will breed a born musician.

It is so much earsier to breed down than it is to breed up. There seems to be a natural gravitation for character and individualism. If the progenitors simply make no effort and foster no ennobling ambition, the trend will be backward and downward. Let nature take its course and its course will be like that of the brute kingdom. To breed upward requires character and effort.

The poet is born, not made. The making was in the life of the foreparents. Edison did not grow into the greatest inventor of modern times alone by training and prolonged, painstaking, concentrated effort. Some foreparent of his had an electrified brain, which foreshadowed the electric era. The germ or the seed had been planted and Edison is the product. So it is with musicians, orators, teachers, doctors, preachers, surgeons, politicians, statesmen, merchants, baseball players and everything else. The training of the material is only secondary and supplemental.

The natural bent is after the habit and the character of the fathers. The greatest possible incentive to right living in ourselves should be that our children may be born well. There is a world of wealth in good blood. But, young man or young lady of the blue blood, rest on the laurels of your ancestors and see where you will land. Take your seat and puff up with family pride and go through life on the reputation and the creative powers and created products of your ancestors and the first thing you know, you will be last and the man at the bottom who insists on climbing, will be at the top. Individual effort must be added to your bountiful heritage. The young human plant must be cared for in the life and the character

of the parents and in the embryo state and the child life, it we would produce a strong, sturdy, well-rounded, full grown plant.

I frequently get Congressional graft vegetable seed from Weshington. The request comes with the seed to report what success I have with the plant.

I have never yet received any inquiries from Congress nor from the State Legislature to know what kind of people we are growing, what kind of seed we are using and what kind of traits we are sowing. The lawmakers and the politicians have never asked for any reports along this line. They have never inquired what legal restrictions need to be placed upon the marriage and the perpetuation of epileptics, imbeciles, idiots, insane people, uncured syphilitics and consumptives, criminals, confirmed drunkards, double first cousins, all of whom produce and reproduce State and County charges and threaten the very existence of our social institutions. The people, the lawmakers and the medical profession are entirely too ignorant in regard to such important matters. We pay more attention to the breeding of domestic (animals) dumb brutes than we do to the breeding of human beings. If a cow sucks herself, kicks over the milk pail or runs children, we sell her at once for beef. If a mare kicks, balks, is a stump-sucker, is mooneyed, has rheumatism, has weak bowels, is dishfaced, nervous, unruly and has no sense, we discard her as a broodmare. We wish not to perpetuate the species. But what about the woman? What judgment do we use in choosing the mothers of our children? There are kickers, balkers and stumpsuckers amongst women and amongst men too. This question of breeding and perpetuating the human species is really the greatest problem social economists and political economists have to solve. Every progenitor of criminals should have a vasectomy as provided in the State of Indiana by statute. Every male idiot, imbecile, every male with incurable insanity should

have a vasectomy provided by law and passed upon by a commission.

Every idiotic woman, every incurable insane woman, every half-witted human female should be rendered barren by surgical proceedures lest they propagate their kind and fill our institution to overflowing with State charges of this kind.

Have you ever observed closely what shapeless, shiftless human beings have full liberty to propagate their kind without restrictions? Crosseyed, harelipped, half-witted, etc. The crosseyes, the harelips and the clubfeet can be corrected by surgical proceedures and subsequent generations be protected. The time is coming when the State, from a prophylactic standpoint, will have to take charge of certain classes of individuals.

There are many popular, sensible(?) young fellows moving in the best society that would do themselves, their people and their country less harm, if they had proper guardians appointed for them. No confirmed drunkard, no uncured syphilitic should be allowed to marry until a cure is absolute. And to preclude the possibility of his getting a certificate or passport from some doctor for a fee, he ought to be required to submit a report from three honest, responsible physicians.

Any drunkard or syphilitic who becomes guilty of fathering a child should have a vasectomy imposed as soon as his guilt is established.

You can study the character of the forefathers by observing closely the disposition, habits and natural tendencies of their children. Every walk, the shuffling gait, the carriage of the head, the physiognomy, the voice, the setting of the feet, the shape of the head—all mental, moral and physical characteristics are inherited. We often recognize people by their walk.

If you expect your children to be anything, you must be something yourself or have an exceptional woman for a wife. But it is hard on the good woman to sacrifice herself to such a life. You have no right to be a sorry, self-willed, self-satisfied fellow and then deceive a good woman of good family

into marrying you to save your children from wreck. Many a family has been saved from dirt, death and the devil by a good wife and mother, strong by birth and inheritance. Sometimes mothers grieve over their wayward boys and follow them to the very gates of hell. They are being visited with the sins of a sorry ancestry. It does seem like a cruel fate.

The mother says "Johnnie was always such a good boy, he is not bad, he is not guilty. Why did he steal? Why did he commit murder? Why does he lie? Why did he seduce our neighbor's innocent girl? Why does my boy waste his substance upon bad women?" There is only one answer. It was born in her boy. The harvest is being reaped. Why, have you never heard of old Bill Smith, the boy's grandfather? The biggest devil that ever lived! He used to steal the neighbors' sheep and hogs, destroy their pasture fences for pure cussedness. He would steal anything he got his hands on. He was dishonest at heart and constitutionally opposed to paying any honest debt. The boy resembles him in character. Honesty runs in families and scrupulous habit in the payment of debts, in meeting obligations or in keeping promises, is handed down from the foreparents. On the contrary disregard and disrespect for obligations is passed down to the children of dishonest parents.

Why did Johnnie commit murder? His maternal uncles, whom he resembles in character and in life, were high tempered, fighting, brawling fellows, and each committed a wilful murder in his day.

Why does Johhnie lie? He had a paternal uncle that was a natural-born liar. He would make Ananias quit the game in diffidence. Why did Johnnie ruin our neighbor's daughter and why does he delight to associate with low women? Have you never heard of old Sam Brown? He was the worst old whoremonger for miles around. Dear mother, your tears are only idle tears. They should have been shed two generations past. You or your husband or both got badly cheated in mar-

riage. A gentleman or a gentlewoman is born, not made. The gentlemanly spirit must begin with the fathers. Nothing irritates me more than to see a large Red Jersey of Mammoth Black hog occupying two seats of a car while ladies or frail old men are standing nearby. I hesitate to disturb him. He is such a specimen of the hog that if I rub against him, I might get some hog on me.

Great brains and great minds are born, not made. In the cultivation of the human species it is possible, by beginning two or three generations back, to attain a greater degree of perfection than has ever been attained before. It is possible to produce greater men, greater talent and greater artists along all lines than have ever been produced in the past. But the question of marrying and intermarrying must be scrupulously and scientifically guarded.

There are three great solemn events in every man's life—his birth, the most solemn, his marriage, the next, and the third requiring extraordinary courage when he has to leave the parental roof, choose a calling, and giving up the care of father and mother, become an independent factor in the affairs of men.

He has not control of his allotment by birth. If he makes a mistake in his selection of a wife, the chances are she will outlive him. It pays to take time to choose a wife. Many men steeped in business and entirely engrossed in money-making do not have time to marry wisely. So they take some convenient woman who is looking for just such a catch. In fact she readily takes in the situation. She knows exactly how to bait the old fish and the first thing he knows, or somebody else knows, she has him drawn in and tied fast. Afterward he comes to his senses and learns that he is tied up for life.

In the study and the cultivation of the human kind it is possible to make blendings and breeds as beautiful as any rose or vegetable cultivated and perfected by Burbank.

In this Medical Association we have men with features, physiognomies and characteristics corresponding with those of many animals of the brute kingdom.

We have the lion, the king of the beasts, the daddy rabs, the fox with his cunning, the skunk, the bear, the white swan in its purity, the owl with his wisdom, the snail and the terrapin so slow but persistent and sure, the deer swift and always on the alert.

And back of every facial expression and every shape of head there are certain characteristics, certain traits of character.

Taints.

We have tainted money, tainted character, tainted meat, disease taints. Taints always mean something bad. Nothing can be tainted with good.

I have time for only a brief consideration of disease taints. Syphilis can be handed down from the father for almost a generation of years. This is the syphilitic taint. The consumptive father or the consumptive mother may transmit to the child a weakness that will greatly hinder it in the race of life.

You can cut the tails off dogs from one generation to another till you will breed bob-tailed dogs.

I have known families with three generations of liars. The grandfather was a regular Munchausen. The son inherited the trait. The grandson was a leading member of the Ananias Club.

I have known the cursing habit to run in direct line of descent through three generations.

Selecting a Life Partner.

Before accepting the friendship of a young man with regular attention, a girl should get a reliable history of his pedigree. It is too late after the friendship has waxed warm and she has come to love him as only a woman can. To the devil with pedigrees and family traits then!

The same right of investigation of family pedigree should be accorded the young man who is to select a woman to be the mother of his children.

Here are a few things, the tendencies to which are inherited: Crosseyes, squinteyes, harelip, clubfoot, various types of idiocy, the rheumatic diathesis, the uric acid diathesis, the typhoid diathesis, weak eyes, weak stomach, weak bowels, paralysis, heart diseases, kidney diseases, tuberculosis, insanity, stammering, the stealing propensity, inebriety, lieing, loquaciousness, the slanderous tongue, high temper, the fiery, fighting disposition, dishonesty in the payment of debts, whoremongering, seduction, laziness, energy and industry, the church-going habit, overbearing bossism, gallantry, chivalry or knighthood, the scholarly instinct, the trading, merchandizing instinct, the habit of asking questions, prying into other people's business, talebearing, backbiting, various manifestations of human venom, leadership, hatred and bitterness, prejudice, craving for honors that are empty, fondness for notoriety and display, family pride, extravagance, wastefulness, economy, habit of dress, Jehus, Nimrods and Ephraims, general cussedness and no accountness, and especially the last two named.

There is no law of nature truer than this that like begets like. Every virtue has its corresponding vice. Every good deed and every bad deed has its reward. What traits are we sowing? What demand will our sons and daughters supply and what prices will they command?

I close with the truth of the whole matter summarized in the words of Emmerson, "Sow a thought and you reap an act, sow an act and you reap a habit, sow a habit and you reap a character, sow a character and you reap a destiny."

"Traits and Taints." Dr. H. D. Stewart, Monroe.

Dr. I. W. Faison: *Mr. Chairman*: I am one of the animals like Dr. Stewart, that likes to look at folks, and I am here to say that I think no one outside of Union County would dare

to write a paper like that. A man who lives in Union County and lives to be fifty years old, dares to do anything. (Applause).

Mr. Stewart is a bold man. A man of courage. He has brains in his head that sees things. He has a voice that he might cultivate a little, but he is like the old people who took a jackass and tied his tail to the door of the church and the animal began to try to get away and kicked and brayed and finally the preacher stopped in the midst of his sermon and said, "I will stop. I might talk against him, but I might strain my voice."

I would also suggest to him, if he loves money, or is not afraid of dying, if he will strain that voice and go on the Chatauqua platform, he will either come home with a pocket full of money or he will come home in a box. Some people might not stand for that paper. Some of these Jews might kill him. Some of these negroes might think they would kill him.

Now, gentlemen, what he has said in regard to the human race is absolutely true as holy writ. What he says about men going around cheating and stealing and telling lies is going to beget sons and daughters that will cheat and tell lies; and you young men who are thinking of getting married, find out first what men in the girl's family have been in the penitentiary for stealing money, or who has dangled at the end of a rope. He said he would go back from five to one hundred generations for a bank cashier, and you might put your money down by him by the millions and when you got ready to count up, it would be there. I love men who will stand up and talk the truth in a paper like that, and I endorse everything he said. I am not responsible for what he said, but still I endorse what he did say. I would like for that paper to be read in every school house in North Carolina; for every child that goes to school should hear such doctrines as that. If they have that trait in their character to cheat, and debauch and

seduce good women, they should be put in the path that leads to virtue and holiness as soon as possible. It cannot be done in a generation. The doctor is right.

Genltemen, you young men, I am an older man than many of you; find out the intellectual standing of your would-be wife, for if you do not get a wife who has the intellect to make smart children at your house, you are not going to have smart children, no matter how much money is spent on them. Let the mother have brains, and if you go around stealing and telling lies, the children are going to do it—not all of them. It may take a long time to catch them, because they have smartness sufficient from the wife to keep it hid.

I want to thank Dr. Stewart for such a paper, and to thank God that he had backbone enough to put down and read to us what his mind thought.

THE ILEO-CECAL FOLD AND CHRONIC APPENDICITIS.

J. Shelton Horsley, M.D., Professor of the Principles of Surgery and Clinical Surgery in the Medical College of Virginia; Surgeon to Memorial Hospital, Richmond, Va.

During the past year my associate, Dr. C. C. Coleman and I, have been carefully examining the last few inches of the ileum and the ileo-cecal valve in every case of chronic appendicitis and in every abdominal operation where the condition of the patient justified such an examination. In common with many other surgeons we had previously been content to remove the appendix through a small incision and to deliver no more of the bowel than possible. Often the appendix was the only structure that was delivered into the wound. This, of course, makes a satisfactory operative recovery, but in a considerable proportion of cases of chronic appendicitis there has been a long presistence of the identical symptoms that the patient complained of before removal of the appendix. In some instances these symptoms have been so definite and persistent as to render the common explanation of "trouble from adhesions" untenable. After going over our cases carefully and eliminating such causes of error as stone in the kidney and ureter, rheumatism, spinal trouble, ulcer of the duodenum or stomach, etc., we have found a small number of cases whose pain was so well localized and so definite that the only conclusion was that the pathological condition had not been relieved by removal of the appendix. Dr. E. MacD. Stanton sums up my own experience so well in an article appearing in the Annals of Surgery for June, 1911, that I will quote him.

"That the end results in cases operated upon for supposed chronic appendicitis have not thus far been altogether satisfactory, is attested by the fact that in almost every community there are more or less numerous patients who have had their

appendices removed, with no improvement in their symptoms. This is partly accounted for by the fact that chronic appendicitis has been the especially selected playground of the amateur surgeon, but there is abundant evidence that a large proportion of the uncured patients have left the operating tables of surgeons whose standing is unquestionable."

Since Mr. Lane, of London, has called attention to the peculiar pathology in the terminal ileum that has been designated Lane's kink or band a great deal of interest has been created in the causes and pathological and clinical significance of this condition. It is not necessary to repeat here what has recently appeared on this subject, but the work of such surgeons as Mr. Lane, Dr. Chas. Mayo, Dr. Franklin Martin and various others has abundantly testified to the rather constant presence of this condition in about ten per cent. of cases of chronic appendicitis. That such a band producing a kink in the terminal ileum and interefrence with its peristalsis and the emptying of its contents into the cecum would cause symptoms can very readily be understood when we consider that a slight adhesion about the pyloric end of the stomach is responsible for very constant and definite symptoms. However, there are many cases of chronic appendicitis in which the typical Lane kink and other pathological conditions can be definitely excluded and still, after removal of the appendix, precisely the same symptoms are complained of as before operation. In this small, but annoying group of cases we believe that the ileo-cecal fold is probably responsible for some of the trouble. This fold is attached to the terminal portion of the ileum opposite its mesenteric attachment and to the ileo-cecal junction and passing down joins the mesentery of the appendix and sometimes the appendix itself. It can readily be seen that a chronic inflammation of the appendix may produce a shortening of this fold in such a manner as intestinal stasis may produce a shortening of the band that causes Lane's kink. If this fold is not removed when the appendix is removed the whole con-

dition is not corrected. On the other hand, there are many cases of chronic appendicitis in which the trouble is confined solely to the mucosa of the appendix and there may be no shortening of the ileo-cecal fold. However, when the mesentery of the appendix is ligated the ligature pulls down on the ileo-cecal fold and so exerts marked traction on the terminal ileum. If the ligature on the mesentery of the appendix is tied to the ligature on the stump of the appendix this traction will be still further increased. In other words, in cases in which the ileo-cecal fold does not produce an abnormal pull upon the terminal ileum the constriction of the ligature on the mesentery of the appendix with which this fold blends, pulls down on the ileum and either makes a kink in the ileum by pulling on the fibres of the free border of this fold or increases the obliquity of the insertion of the ileum into the cecum. This condition we believe, gives rise to many of the post operative symptoms in cases of appendicitis that have not been relieved by removal of the appendix.

In conclusion, we will recommend that in every case of chronic appendicitis the ileo-cecal fold be removed. If it has previously been shortened from intestinal stasis and inflammation of the appendix it will give symptoms whether the appendix is removed or not. If the appendix is removed, the ileo-cecal band, which normally may not exert undue traction on the ileum, is likely to be so constricted by the ligature on the mesentery of the appendix that it will produce undue pulling on the ileum and consequent kinking or partial obstruction where none existed before. Of course, there is no occasion to remove a normal ileo-cecal fold unless the appendix has to be removed also.

It has recently been our practice in every case of chronic appendicitis to remove this fold when it is at all well developed, by cutting it close to its insertion into the ileum and tying the vessels with fine cat-gut. Sometimes it is necessary to approximate the peritoneum with a fine suture. While these

cases have been too recent for a satisfactory report we have been impressed by the fact that we have had much less complaint of post-operative symptoms since adopting this procedure.

"The Ileo-Cecal Fold and Chronic Appendicitis." "Ovarian Cysts." Dr. J. Shelton Horsley, Richmond, Va.

Dr. J. W. Long, Greensboro: *Mr. President*: I arise simply to say that I regard Dr. Horsley's paper touching Lane's kink as a very timely one. It treats of a subject about which we hear very little in these general meetings. I think the presence of the obstructive band or adhesion known as Lane's Kink, accounts for perhaps a large percentage of the cases in which there has been a failure to relieve the local symptoms which the patient experienced before operation for chronic appendicitis.

For a number of years I have been careful to remember, even before I heard of Lane's work, that the last few inches of the ileum are normally located in the pelvis. Therefore, while operating I have been exceedingly careful not only to separate adhesions that may be attached to the ileum, but to replace the ileum over the brim of the pelvis wehere it should be, and in this way avoid the subsequent formation of adhesions producing just the conditions which Dr. Horsley has been discussing. I, for one, appreciate the fact that Dr. Horsley has come all the way from his home in Richmond to address us on such an interesting subject.

Dr. J. T. Burrus, High Point: *Mr. President*: I wish to say in this connection, speaking in regard to the removal of the ovarian cysts, I removed one or two ovarian cysts, not so large by any means as the one that Dr. Horsley has described to us to-day by his photographs. The importance of taking care of the patient when this intra-abdominal pressure is removed, and his remarks right along this line, impressed itself upon me so forcibly, because about two weeks ago I had a

case, a lady seventy-one years old. The patient was about as large as a woman eight months in pregnancy, and in opening or removing this fluid from the cyst,—as it was entirely too large to deliver the tumor without aspirating the tumor itself,—I came very near losing my patient on the operating table because I neglected to take the precaution which Dr. Horsley insists should be taken in these cases.

I believe that it is a wise thing to always make this provision for the shock which is induced by the withdrawal of this amount of fluid from the abdominal cavity, and because of this important point, and because of my sad experience, I just want to make mention of it.

Dr. Horsley closes: I wish to thank the gentlemen who have taken part in the discussion. I desire again to call attention to the fact that this ileo-cecal fold is an entirely different matter from the Lane's band, though it may act in somewhat the same way so far as producing obstruction in the terminal ileum is concerned. The ileo-cecal fold is a rather constant anatomical structure and is mentioned in many anatomies.

It may cause trouble, however, when it becomes pathological on account of inflammation, or when it causes obstruction on account of a ligature which is applied to the meso-appendix with which the ileo-cecal fold usually blends.

SIMPLIFIED OPERATIONS IN GYNECOLOGY.

E. T. Dickinson, M.D., Wilson.

The number of remedies and operations for the relief of abnormalities in gynecology resembles that for the relief of the various varieties of malaria in the pre-cinchonic days. Until recently it was held by a certain class and accepted by all others that there was something mystical, except to the gynecologists, in the diseases of women. Now it is generally known that this branch of medicine also has a reasonable foundation. The most successful operations are the simple and easy ones, based on anatomical knowledge and physiologic repair. Any surgeon now can do them, and the former gynecologist is growing no more.

The most simple proceedures have been worked out on rational lines from the most perplexing and fantastically described operations. I am yet sometimes confused with the college days' description of the famous butterfly operation for lacerated perineum.

Instead of recognizing the complex butterfly fancy in any operation we now know that all lacterations of the perineum take place on the same general principle and may be repaired by a fixed operation.

The important structures lacerated and relaxed in a perineal tear are, in slight lacerations, the levator ani muscle and its loop of post vaginal fibers; in second degree tears the bulbo cavernosi and transversus perinei in addition; in complete tears the sphincter ani in addition.

The mere holding of these severed muscles together, approximately in their original position, under favorable conditions insures fibrous union and such anchorage as will give the muscle its original tone and contractility, which is the essential in perineal support rather than the firm perineal

body that is so often desired. Thin perinei with muscles intact are quite as effective as those thicker with the same muscular attachment and tone.

In operations requiring this step the denudation is tedious, time consuming and favors infection by exposing lines of suture within the vagina where they must be constantly soaked in vaginal secretions.

Until recently no attention was paid to the muscular structures of the perineum, although this muscular field was laid beautifully bare by the classic denudation, only the non-essential mucous membrane being united.

This tedium of denudation and liability to infection may be avoided in lacerations of all degrees by the one operation now commonly performed by surgeons.

The simple operation is done by making an incision through the line of juncture of skin and mucous membrane transversely between the anus and the vagina, the extremeties of the incision being at the lowest caruncle on each side of the vagina. The mucous membrane of the vagina may then be easily separated and lifted from the muscular layers of the perineum and from the rectum by a few strokes with the blunt dissecting scissors or with the finger for the space of an inch or two. With a short needle and chromic catgut suture the desired portions of the separated levator ani muscles and fascia may be picked up and brought together with either interrupted or continuous stitches, this process of suture being continued until the entire space of the original perineum is filled in by muscle and fascia. Now a puckering string suture extending along the margin of the vaginal free border from caruncle to caruncle and tied makes a new floor for the vagina, and a similar suture placed along the anal free border and tied makes a new roof for the rectum. In cases of complete tears there is no difference in procedure except that the needle is made to dip down and catch up the ends of the sphincter and in one or two of its revolutions. Finally the only remaining

raw surface along the line of the median raphe may be closed with a few stitches.

The advantages of this operation exceed its simplicity. If cleanliness is observed during the operation there is little liability to the entrance of infection later.

In this operation it is plain that the occurrence of recto-vaginal fistula is impossible. The original muscular structures, while they are sometimes unrecognized, are brought together in as nearly normal relation as would be possible under any method. No sutures are to be removed if all catgut material is used and the legs need not be tied together.

An operation that has been remarkably simplified and whose value has been greatly inhanced is the vaginal hysterectomy—the operation that has been almost completely discarded of late for the sake of exploratory laparotomy. The simplification and increased value comes mostly along the line of non suture of the peritoneum in closing the wound. It was found that primarily suture of the peritoneum was unnecessary and secondarily that the great advantage of leaving a much longer and better suspended vaginal canal was secured. By packing gauze in the peritoneal cavity to fill the original space occupied by the cervix uteri such adhesions are secured above the gauze between the bladder and the rectum as to give the space occupied by the gauze to the vagina.

Advantages are given in cases of cystocele or rectocele by this adhesion between the bladder and rectum which holds up the cystocele or the rectocele.

Another operation that has been rationalized and simplified is that for suspension of the uterus. Alexander's operation is undoubtedly on the right principle and has stood every design that the imagination could fancy. But in cases where the abdomen has been previously opened for exploration or other cause, then a perfect principle may be put into effect by drawing a loop of the round ligament from near the uterus up under the anterior peritoneum of the broad ligament laterally

to its reflection upon the abdominal wall and thence through the muscular wall into which it is attached with the proper tension.

These are the operations that I have seen simplified and based on rational principles and which, I believe, when faithfully performed do for the patient and the surgeon most approximately what is expected and promised. And thus I believe by rational simplification will continue the reform throughout the long list of gynecological diseases.

PHLEBITIS OF THE FEMORAL VEINS, FOLLOWING SURGICAL OPERATIONS AND TRAUMATIC CONDITIONS IN THE PELVIS.

RIGDON O. DEES, M.D., GREENSBORO.

Phlebitis or phlegmasia alba dolens or milkleg is an extremely troublesome complication, following certain operative proceedures in the pelvis, and too complicates obstetrical and medical cases. It is by no means a condition easily met, and not infrequently does it prove fatal, and at times when we think all acute symptoms have subsided.

Causes:—The causes of inflammation of the femoral vein or veins, as the case may be, are many, and among the list prophylaxis, should play a large part in the treatment, so far as we can control, by avoiding unnecessary trauma in the pelvis. Ligating vessels enmasse or including tissues within the ligatures, and such things as tend to bring about too much change in the circulation.

There are causes which we cannot control; accidentally puncturing vessels in pus cases, gonorrheal and syphilitic infections, instrumental procedures in mal-normal obstetrical cases.

Histologically, the vein is very poor in its muscular coat, and does not have that elasticity, like the arteries, and therefore is prone to infection, and sluggish circulation, and an inflammatory process, however small, will cause a whipping out of the fibrin element of the blood, with a resulting thrombus, and a possible distribution of emboli to the lungs, brain or heart, with their fatal results. Diagnosis:—When the condition is well developed, a mistaken diagnosis would seem impossible. Pain and tenderness along the course of the vein of one or both legs, usually, the left. Oedema of the extremities from below up, if it be an endo-phlebitis or from above

down, if a cellulitis, which involves the veins. Elevation of temperature, rapid irritable pulse, etc., are sufficient it would seem, not to err in diagnosis. However, there are cases, which are obscure in their initial stage. When a patient complains of hip or leg pains, following a surgical operation in the pelvis, or in an obstetrical case where there has been great trauma, the result of a difficult instrumental delivery, or a long drawn out medical case, it should arouse our suspicion and put us on guard. If it be one extremity only, that will be involved, we will note an elevation of temperature from one to two degrees Farh., in the affected leg. This condition being present, frequently, throughout the course of the complication.

Treatment:—Other than prophylactic, is absolute rest in bed, for one week or more, after all symptoms have subsided. Elevation of the extremities to relieve the edema, and to aid in the return blood flow. As to medicinal agents, many things are recommended; the ones most in favor are to apply, *but not rub,* a 50% or better still, straight ichthyol or an ointment of ichthyol, belladonna and mercury, or an olive oil dressing. Wrap the parts in cotton batting or flannels and lightly bandage, avoiding at all times, any manipulation that would have a tendency to cause a loosening or softening of the thrombus, and a distribution of emboli to the heart, brain or lungs, with their usual fatal termination.

Potassium-iodide, seems to have some beneficial effects in bringing about an absorption and elimination of a thrombus and an inflammatory process, in and around a vein.

HERNIOTOMY IN YOUTH AND OLD AGE.

A. E. Baker, M.D., 126 Rutledge Avenue, Charleston, S. C.

The technique of herniotomy, or any major operation, in childhood and old age in reference to preserving and favoring all of nature's vital forces, is essential in obtaining good results and lessening the per cent. of death rate. At this time of life, nature's recuperating powers are weak and will not respond readily, if at all, to therapeutic measures.

The technique, which is necessary to be observed, viz., not to permit the patient to be unnecessary starved or depleted by purgation before the operation, administer such treatment as will put the patient in his or her best physical condition. The anæsthetic to be used should carefully be considered. Ether is my preference for many reasons—but any are safe in the hands of an expert, and not one drop of the anæsthetic should be given more than that which is necessary to produce anæsthesia. When it is given after this method, the patient has to rally only from the effects of the operation, and not the additional burden of an over dope. The patient should be on a dry and warm operating table—nothing wet to depress and lower the heat centers. The field of operation should be prepared before the patient is carried into the operating room. The time consumed in performing the operation should be as short as possible. These are some of the requisites which determine the results in operations performed in youth and old age.

In reporting three cases of inguinal herniotomies in childhood—two five years of age, and one less than two years of age. The latter had double inguinal hernia—both operated on.

The writer wishes to call your attention to the dressing applied to wound and after-care of patient. Each wound was sealed with collodian, and no plaster of Paris applied to their

tender little bodies to put them in a fixed and immovable position—a straight jacket, which is cruel, to say the least. An adult, after a herniotomy, is permitted to turn and twist in the bed. Why not give the child the same privilege? The thorough method of performing the herinotomy—that of suturing separate, each layer of tissue together—dispells all fear of damage to the parts, allowing free mobility to the extent that pain will permit.

Sutures used in these cases were No. 3 iodine catgut.

Each recovered from the operation without any shock. About eight hours after operation these children were permitted to be taken home by their mothers, whom I deemed more competent to care for their wants and to meet every indication as regards their physical needs. Then, again, a mother can do more with her child than any one in an institution can. She knows its diet, she knows how to amuse it, and in many little ways can she make it more comfortable than strangers. When the services of a trained nurse is needed, it is advised and secured—she is only to assist the mother in executing the doctor's orders.

These children remained in bed at their homes for eight days or more, and were given the liberty of the room. Dressings were removed on the 12th day—light adhesive dressings were applied—union by first intention, without any infection or damage resulting from liberty given.

In regard to hernia in old age: We know that after one reaches sixty, inguinal hernia in most cases is not kept up by a truss, because the muscles have been thinned out by the long pressure of the truss, and atropied by age.

The Bassini operation is faulty for the cure of hernia in old age. The technic is to suture the internal oblique muscle and conjoin tendon to Poupart's ligament to obliterate the inguinal canal.

The upper portion of this canal, its weakest point, is the

internal abdominal ring, and it is closed off by suturing the lower portion of the internal oblique muscle, through which this ring is formed, to Poupart's ligament. Here we have muscle to ligament, which gives a faulty union—like tissue to tissue gives union that will hold. The conjoined tendon which is formed by the union of the internal oblique and transversalis muscles is not a part of the closure of internal abdominal ring. It serves only to close the lower two-thirds of the inguinal canal. Therefore the upper 1-3 of the inguinal canal, which is practically the internal abdominal ring and the weakest part of the hernia tract has not the support of the conjoined tendon —but only the muscular fibers of the internal oblique muscle sutured to Poupart's ligament. The modified Bassini, to overcome this defect, is to suture the aponeurosis of external oblique with the internal oblique muscle to Poupart's ligament —aponeurosis to Poupart's ligament is like tissue to tissue. The cord is transplanted, resting on top of the aponeurosis of external oblique muscle, which has been sutured with its under muscles to the shelving edge of Poupart's ligament. The external flap of the aponeurosis of the external oblique muscle (which is a continuation of Poupart's ligament) is folded over the cord and its edge sutured down, making a new canal for the cord.

Four cases were operated on who were upwards of seventy years of age. Three of them were suffering from interstitial Brights—atheromatous arteries. The other one was very plethoric and used alcohol to the extreme limit. This rendered general anæsthesia unsafe. These four cases were operated upon by the method just described, under a local anæsthetic (cocaine) and made uneventful recoveries; absolutely no shock following operation, and convalescence was very rapid.

Linen sutures were used to suture the external aponeurosis and internal oblique muscle to the shelving edge of Poupart's ligament—both of these layers of tissues were included in

this one row of sutures, as above stated. Linen or silk is preferable in this class of surgery at this time of life. There is no danger of the union of tissues giving away in after months. The linen or silk, not being absorbed, holds for all time. Catgut is my choice of sutures under other conditions.

PROLAPSUS UTERI.

C. S. Lawrence, M.D., Winston-Salem.

In presenting this short paper on the subject of prolapsus uteri I wish to state at the outset that I claim no originality for what I shall have to say.

Prolapse is a time honored term for downward displacement of the uterus and includes a number of anomalous positions of the uterus, vagina and adjacent organs that are etiologically quite different and represent entirely distinct clinical pictures. The physician must therefore never content himself with a diagnosis of "Prolapse," he must include in his diagnosis the changes present in all the organs that take part in the prolapse. For this purpose systematic examination of the vulva with floor of the perineum, the pelvis, vagina, uterus, bladder and rectum is necessary.

The various forms of complete prolapse represent the final stage of gradually developing changes and are usually very much alike. Most cases of prolapse however, that come under the physicians observation are incomplete or still in the process of development and differ in certain important points until they finally reach the terminal stage which is practically the same in all forms. As however the process may become arrested in any stage, it is not proper to base a diagnosis exclusively on the terminal condition the transitional stages must also be described as separate and distinct clinical pictures, bearing in mind however that the transition to the final stage is often quite rapid.

Thus one woman may suffer from moderate descent of the vagina and continue in the same condition until the end of her life, while in another patient a moderate degree of descent of the vagina (partial prolapse) may within a few months

become converted into complete prolapse of the vagina and uterus.

For this reason I have subdivided the various clinical pictures which are included under the generic term "Prolapse."

The vagina takes part in all varieties of prolapse and the following conditions may be distinguished.

1. Descent of both vaginal walls.
2. Prolapse of the anterior vaginal wall.
3. Prolapse of the posterior vaginal wall.
4. In prolapse of the entire vagina.
5. Inversion of the vagina.

(a.) In most cases both vaginal walls protrude into the introitus as the woman bears down the anterior usually more than the posterior. Circular descent is rare. The relaxed posterior columna rugarium is very often obliquely placed because of unilateral vaginal lacerations.

(b.) Prolapse of the anterior vaginal wall causes a tumor of variable size in front of the vulva consisting of the prolapsed anterior vaginal wall. The lateral portions of the vagina are drawn down somewhat by the tumor; the posterior vaginal wall in complicated cases, so far as its lower portion is concerned remains completely in situ, while the posterior vaginal vault is inverted by the uterus, which also descends. A cystocele is always present and varies in size with the degree of vaginal prolapse.

(c.) Prolapse of the posterior vaginal wall is one of the rare forms it is observed in cases of ascites or it may be forced down by coils of intestines in the cul-de-sac of Douglas, in rare cases of congenital abnormal depth of Douglas' space may cause prolapse of the posterior vaginal wall the anterior wall remaining in situ.

(d.) In prolapse of the entire vagina the latter is entirely in front of the vulva.

(e.) Inversion of the vagina is the result of primary descent of the uterus and begins at the vaginal vault and as

the uterus descends carries with it the vaginal vault while the lower portion remains in situ.

As the parts that are prolapsed are no longer protected by the mucous membrane of the vagina, secondary changes take place, the mucous membrane becomes dry and horny like skin, parts become fissured, crusts form and sometimes there is pigmentation, ulceration, and as a result of the constriction by the introitus there is edema and redundency.

After the condition of the vagina has been described the extent to which the uterus is prolapsed is investigated.

We distinguish two different conditions.

1st. Primary descent and prolapse of the uterus.

This occurs in conditions of relaxation of the peritoneum and its ligaments and of the pelvic connective tissue. It is therefore regularly associated with retroversion which occurs from the same cause. The vaginal portion is in the pelvic axis below the interspinal line.. The upper portion of the vagina is inverted while the introitus and the lower segment may be normal, in most cases however the latter are also relaxed and displaced downward. In more severe grades of primary descent the vaginal portion enters the introitus, and in a fully developed total prolapse the uterus, covered with the completely inverted vagina, lies in front of the vagina usually in retroversioflexion, rarely in anteflexion. In a small number of cases the uterine prolapse is associated only with prolapse of the posterior vaginal wall, while the anterior wall merely presents a slight degree of inversion from above.

2nd. Secondary descent of the uterus with elongation of the cervix. This condition also is ushered in by a slight descent of the uterus with retroversion due to relaxation of the peritoneal ligaments and pelvic connective tissue which usually develops simultaneously with relaxation of the vaginal walls. As the relaxation continues however, the uterus is drawn down by the prolapsed anterior vaginal wall aided by a cysto-

cele, which is connected over a wide extent with the anterior wall of the vagina and cervix. The uterus offers no resistance to the pull thus extended until the vaginal portion approximately reaches the introitus. Further displacement is temporarily prevented by the peritoneal ligaments and pelvic connective tissue and instead the cervix is slowly distended by the continued pull of the anterior vaginal wall and the cystocele, thus elongation of the cervix is produced.

Treatment: Case I. Mrs. E. C., white, age 32, Para VI, native, N. C., occupation, housewife.

History—Complains of pain in back and side low down, sensation of bearing down, leucorrhea, painful defecation and frequent micturition.

Examination Pelvic—Retroversion and descent of uterus cervix at introitus and elongated cervix lacerated and everted, 2nd degree lacaration of perineum, slight rectocele.

Treatment, Curettage, amputation of cervix, perineorraphy repair of levator ani muscle. Laparotomy, shortening of uterosocral and round ligaments.

Patient made good recovery and has remained well since December 14, 1909.

Case II. Mrs. G., white, age 32, Para IV, native N. C., occupation domestic.

History. Married 7 years, worked hard. Last confinement four months ago which left her very weak. She suffered with a severe diarrhoea and was worried with her sick baby which died at age of two weeks, a few days later she got out of bed and walked about the room and became alarmed when she noticed the womb had come out of the vagina. This condition of affairs kept up for four months when she was referred to me for operation which was performed July 29, 1910.

Examination Pelvic—Complete laceration of the perineum. Cervix at introitus vagina and with vulsellum could be readily brought out of the vagina. Bladder and urethra in very good condition save a slight cystocele.

Treatment, Curettage, perineorraphy with repair levator ani muscle. Laparotomy, shortening of the utero-sacral and round ligaments. Ventro suspension. Patient made good recovery and has remained well, doing her domestic work.

In treatment of these cases the levator ani muscle which had been separated in childbirth was in each case sought out and approximated making a good substantial pelvic floor, the utero-sacral ligaments were shortened after the method of Bovee, bringing the cervix well back into the hollow of the sacrum. The round ligaments were shortened by the Baldy method which throws the fundus uteri well forward, and the ventro suspension after Kelly.

To me this seems to be the ideal treatment in childbearing women. For women past the menopause, I would suggest (besides taking in the slack in all the uterine supports) abdominal fixation.

In cases with elongated cervix the latter must be amputated in addition to above treatment.

In those cases of marked enlargement of the body of the uterus a V shaped section may be removed from the corpus uteri and vaginal fixation performed after the method of Schaude and Wertheim.

If possible in all cases of childbearing women I think the uterus should be saved as well as in women past the menopause, but there are a certain class of cases in old women of long standing with marked redundancy of the cervix and vaginal walls, with ulceration which require hysterectony. Where this procedure is indicated the method of Dr. Thos. S. Cullen, described in Surgery Gynecology and Obstetrics, March, 1910, seems to be the proper one.

SPURIOUS PREGNANCY WITH REPORT OF CASE.

J. S. Clifford, M.D., Charlotte.

Pseudocyesis or phantom pregnancy is a condition found in nervous or hysterical women who ardently desire offspring, either at the beginning of married life or at the approach of the menopause or it is sometimes encountered among those who fear impregnation and it is, at rare intervals, found in women who without longing for or dread of maternity believe themselves pregnant.

It is essentially a neuroses yet oftentimes the Thyroid gland may be enlarged, anemia marked and the musculature of the uterus soft and flabby.

The subjective signs are invariably present, menstruation is stopped, the abdomen increases in size, often a symetrical tumor may be palpated, percussion may even be dull on account of the contraction of the abdominal muscles, the areolæ becomes darkened and the patient believes that she feels fetal movements.

An accurate physical examination will show the absence of all the positive signs of pregnancy and the physician's statement of his findings at this time is received with doubt and amazement by the patient and her family. It is well at this juncture to anesthetize the subject, a reliable relative being present, and the distended abdomen, due to tympanites or fat, flattens out and the unimpregnated uterus may be palpated. As soon as the patient recovers consciousness the swelling returns as do the other annoying symptoms aptly illustrating the influence of the mind on the nervous system. In the case quoted below the woman had no longing for or dread of maternity, yet it was necessary to perform a curettement before she was convinced of the fallacy of her belief.

Case—Mrs. J. H. M., age 23, large well formed woman,

family history negative, no serious illness, menstruation began at 12, regular, no pain, married June, 1908, menstruation ceased August 10, 1908. Patient believed that she had conceived and had no disagreeable symptoms. Abdomen enlarged progressively and felt movements about Xmas, 1908. Early in February she complained of the activity of these movements and for the first time grew nervous, complained of the tediousness of her state. I was called February 14 and with the exception of a marked anemia found the subject in good condition, a symmetrical tumor at the level of the umbilicus was palpated but the fundus was not determined nor were the fetal heart sounds and other positive signs of pregnancy present. On February 23, 1909, permission to administer an anesthetic was given and as soon as consciousness was lost the tumor disappeared and a slightly enlarged uterus with a soft patulous servix was palpated. With the withdrawal of the anesthetic the swelling returned and the symptoms enumerated above reappeared. The patient insisted that she still felt fetal movements that annoyed her greatly and her nervousness became so marked that it was decided to perform a curettement. This was done March 10, 1909, and only some catarrhal endometrium was found in the scrapings. Satisfied now that the uterus was empty the patient did not complain and the abdomen remained normal. The anemia present readily responded to treatment and the nevousness cleared up gradually.

In connection with this case it is of interest to note that menstruation returned in June, 1909, and continued regular until November, 1909. In January, 1910, a two months pregnancy was terminated, unavoidably caused by a fall on an icy sidewalk. Placental debris was found in the discharge at this time, menstruation did not again appear and on November 22, 1910, I delivered this woman of a normal female baby.

The puerperium was uneventful and at this writing both mother and child are in good health.

MEDDLESOME MIDWIFERY.

Jos. L. Spruill, M.D., Columbia.

In this paper it is not my intention to attempt to bring out anything new, but to call attention to some things well known to every practitioner. When we begin to study obstetrics and its after effects, we find that many of the various troubles that follow labor are due to meddlesome or careless obstetricians, and I am thoroughly convinced that by far the greatest per cent of all infections, and many of the ill consequences following a torn cervix or perineum are due to this cause, therefore under the head of "Meddlesome Midwifery" may be studied:

First, so-called Childbed Fever, and *Second,* the legion of symptoms and troubles following needless operations at the time of delivery.

As to sepsis, I am sure that frequent examinations at the time of labor and the needless use of instruments are responsible for practically all these cases, provided, of course, the uterus is empty.

This lesson was forcibly impressed upon me eleven years ago by an old negro midwife. At that time the majority of the obstetric practice in my locality was done by midwives. I was just out of a five years' course in hospitals where surgical cleanliness had been drilled into me daily, and naturally, when I located in the country, and found the condition of affairs, I expected to find sepsis on every hand. Much to my surprise I found little of it. At the first opportunity, I asked an old colored woman who did the most of such work in my neighborhood, what she did when called to a case of labor. She said, "I don't do nothin'." I asked her if she never examined her patients. She said, No, I lets her alone 'tel the baby is bawn an' den cuts and ties de cord." I then asked her what she did about the after-birth. She said, "I lets her alone until about a

half an hour and den if it don't come, I makes her blow in a bottle an' that always fetches it." When I consider the surroundings under which this old negro did her work, and the absolute lack of anything in the way of asepsis, and especially since I never knew of a case of sepsis following her, I am positively sure that her success lay in letting her patients alone. This was in the beginning of my country practice eleven years ago, and since then I have held to the letting alone method as rigidly as possible, with the result that my cases of child-bed fever have been practically nil, in these cases over which I have had complete control.

Few of us are experts enough at abdominal palpation to satisfy ourselves as to presentation and position; and are therefore compelled to resort to vaginal examination; but we can limit this to one thorough examination done under strict asepsis, and having done this, and satisfied ourselves that presentation and position are correct, leave her entirely alone until the time of actual delivery.

I know the excuse is offered that we cannot do a clean delivery under all circumstances, but this is only an excuse for inexcusable carelessness. We can do it, if we will. Every physician can carry with him enough towels, soap, brushes, bichloride and rubber gloves to do his work clean if he wants to, and since the cost of these things is very little, there is no excuse for not having them.

And here I wish to say that the doctor's duty to his patient is to give him the very best there is in him in every case, however poor that best may be, and when he neglects any precaution in a case of labor, or any other case, he is guilty of neglect for which there is no excuse The excuse is offered that it is useless to do our work clean and leave the patient in dirty surroundings. It is not useless, for, if the woman is not infected at or before the time of delivery, the chances are two to one that she will not be afterward, provided nothing is put inside the vulva. If such were not the case, then practically every

woman delivered by the midwife would be infected. So, my unbelieving friend, if your patient has infection, you may console yourself with the fact that in all probability you put it there with a dirty finger or instrument.

Now, as to unnecessary operating. Here the letting alone policy works exceedingly well. I am sure most of us are prone to use forceps much oftener than is necessary. I know that when we are called out of a busy day's work to attend a case of labor in a nervous primipara, and find her slow and impatient, when mother and husband and friends are all insisting that we do something to relieve her suffering, and when a number of other sick people are anxiously awaiting our coming, the temptation to use forceps and finish the job is great. But if we will only keep in mind that our first duty is to our patient, not only at the time of delivery but afterwards, and not let our sympathy get the better of our judgment, I think we shall be slower in using them.

In my own brief experience I have seen so many bad results following the use of forceps, in my hands as well as in the hands of others, that I sometimes think them almost as great a curse as blessing. The danger of cervical and perineal tears, to say nothing if infection are by far too great for one to use forceps except when absolutely necessary; and if we will remember how frequently these accidents happen, even in the most experienced and careful hands, and how they may affect the after life of the patient, I am sure we would use them less. Unfortunately forceps operation is not considered by the average physician as serious, consequently every new graduate thinks he can do it as well as the most experienced man. Generally speaking, then, when presentation and position are normal, when the presenting part advances and recedes with each pain, and there are no signs of exhaustion, the best rule is to let the patient alone.

As to the after-birth, of course, no conscientious physician ever thinks of going into the uterus for it except under the most

extenuating circumstances; but I think even here, the let-alone rule works well, for in most cases the uterus will expel it if left for a few minutes; if not, then the Crede method can be resorted to.

The aim of the writer of this paper has been to enter a plea for the letting-alone of every strictly normal case of labor. Certainly no physician should neglect any of the many little details of the lying-in chamber which go toward making his patient comfortable, but having done this, let her alone.

Now to conclude. To my mind the first and greatest lesson in obstetrics is that normal labor is a strict physiological process, and if left to itself will terminate in a physiological manner, and the second great lesson is that by far the greater majority of all cases are normal, and therefore should be left alone.

The most successful obstetrician then, is he who has learned and practices these lessons, and who never interferes except in these comparatively few cases where interference is necessary.

THE ILLEGAL PRACTITIONERS.

N. B. Adams, M.D., Murphy.

When we look around us and see the continued tendency of men to unlawfully engage in the practice of medicine, and see the apparent dormant state of the laity in its attitude toward such practitioners, almost in spite of ourselves we are compelled to fight our own battles. We do not object to the fight in itself, for it's an open secret that we thrive on opposition, and knowing that we are right, and that we have the best interest of the medical profession at heart, as well as the welfare of the whole people, we are not afraid to stand out alone in this contest if we must.

But it isn't pleasant to be placed in the position of being opposed to a class of generally good men, with whom, largely, we are and wish to be on friendly terms. We therefore regret that we are forced to attack the motive and ability of this seemingly growing class of men.

The qualified physician has come into ill repute because he is not regarded as an efficient practitioner of medicine. He knows little or nothing of the medical contents of the specialties and nostrums which come into his office, yet he dispenses them. So it will be observed that an amateur in the role that assumes and is a non-professional rather than a professional man where he dispenses medicine of which he has no scientific knowledge.

There has developed quite a demand for legislation prohibiting the illegal practice of medicine. The idea is correct but the enforcement of such laws is faulty. And no wonder when our society attorneys will make agreements, as reported, before being elected, to not only *not* prosecute such unqualified men, but to urge special legislation in their favor.

The law that the profession deems right and best for the

profession as well as the laity is that all those who practice medicine or surgery shall qualify according to the prescribed methods of such laws; and that the violation of this act is not only under the inquisitorial power of the grand jury, but also a crime for them to fail to prosecute such violators.

The unlawful practice of medicine resolves itself into competition between medical men who dispense or prescribe medicines that are freshly made and are theraputically active, on the one side, and those who use ready-to-use, hand-me-down preparations that may be from one month to three years old. These later drugs may dissolve in the gastric juices and they may travel the entire alimentry canal unchanged. But how can a man practice medicine without preparation? Witness consultation of one such practitioner with one of our worthy members of the fraternity from the grand old state of Georgia, in which he (from Ga.) advised the application of a Spanish fly plaster. Whereupon he of our country proceded to secure a sheet of "Tangle-Foot" fly paper, and with great impressiveness, separated the sheets of "Tangle Foot" and stuck the nasty stuff onto the poor patient! Again one of our limited license men was called upon to do a circumcission. He promptly proceeded to pull prepuce forward and cut it off with scissors. Unluckily the prepuce was adherent and so he cut off about one-third the glanspenis. And then left it so. Our good brother Morrow was called and made the necessary repairs.

Again an illegal practitioner was called to a citizen—one of our best men—who was suffering from strangulated hernia. He said he thought the poor man had varicocele. And proceded to do nothing until it was too late. Drs. Hill and Highway of Murphy, were called and operated, but gangrene had gotten in its deadly work and the patient was lost.

These are only a few of the hundreds of such cases, but will serve to give some idea of gross ignorance and injustice.

Such abuse of our art is not only dangerous, disgraceful and

degrading, but is damnable in its entirety, and in this instance is a slap in the face of the profession from the good brother in Georgia.

Possibly on close thought we can go back and find that the illegal doctor is competing with the householder. The householder diagnoses his own case and prescribes the remedy, namely some advertised prescription, while the illegal doctor prescribes nearest ready-made preparation he happens to have on hand, in the back room of his office and he has about an equal chance to effect a cure, as the householder. Then the worst part of this practice is, the householder will soon find out that he is as good a prescriber of ready made medicines as the illegal doctor, and need not continue to pay doctor's bills.

This question, therefore, resolves itself into two classes of gentlemen. One involves the practice of a learned and complicated art by an unqualified man, and should be prohibited by law. The other involves the very treatment of the part of their lives to qualify. The psendo doctor treats diseases out of packages of labeled tablets or pills or liquid—labeled fever, biliousness—what not—Tommy rot. This kind of practice of medicine could be acquired in thirty to sixty days by most any intelligent 16-year old school boy, without over much wear and tear of his brain.

I am confident that I voice the sentiment of all right thinking physicians and, a good majority of the laity, when I say we should rise up and condemn such dangerous play with human life and happiness.

I have tried to make it plain that we have no personal fight to make on any particular person. Indeed it is not a personal matter. But touches us all. I do insist, and shall insist with all my power, in all earnestness, and with all the strength that God has given me, that such practice in the treatment of the sick is an interference with the qualified doctor of medicine, and as such is dangerous, inherently wrong, and inevitably attended with disaster. Let us warn our brethren of the dangers

of this insistant attempt to interfere with their rights and constant attacks upon their character. Let's deal squarely with him who deals squarely with us, but fight exceedingly shy of the man who is insidiously stabbing us in the back. He has no right to expect any business from us or through our influence, and I am nineteen kinds of a fool if I contribute to his sustenance in the violation of the law, either directly or indirectly.

In conclusion, gentlemen, let us endeavor to rid our country of this abuse, and tear from these unqualified men, the robe of an honorable profession. Lift it out of disrepute, and leave to those who follow us an honorable and clean heritage—"a heritage it seems to me, a king might wish to hold in fee."

"The Illegal Practitioner." Dr. N. B. Adams, Murphy.

Dr. Adams closes: *Mr. President and Gentlemen*: I want to thank Dr. Ringer for the addition that he has made to the attempt which I made in this paper, but I also want to add, gentlemen, that the idea that prompted me to write this paper is that we are "up against it," so to speak, and I got so full of it over in the country where I try to practice medicine, that I just couldn't help but run over a little. Indeed it is reported —and I have no doubt it is true—that in the four Western counties of North Carolina we have more illegal practitioners than they have in the whole State of Georgia.

These truths come to us with astounding force, especially when we are thrown in contact with these people and have to overcome the superstitious ideas and the charlatanism which they palm off on the people, and if you were there you would certainly appreciate the conditions as set forth in the paper I have read.

I thank you one and all for listening so attentively and also for the enthusiasm with which you received the paper.

A PLEA FOR THE EDUCATION OF THE PEOPLE TO THE EARLY EXTIRPATION OF NEOPLASMS.

W. O. Spencer, M.D., Winston-Salem.

Within the past decade by the most strenuous efforts the medical profession has succeeded in placing largely within the hand of the public, the destiny of the Great White Plague, or has at least, in the truest sense turned over to the people the manner of prevention and the means of cure of this paramount destroyer of human life. We have eased our shoulders of this burden and have placed a part of it upon the people themselves. In this we have done well:—but, we have only half begun.

The trite old saying "An ounce of prevention is worth a pound of cure," doesn't begin and end with tuberculosis, but the fight is on. When Dr. Jenner gave to the world vaccination he had to educate the people to their own needs, and gentlemen, he hasn't graduated his class yet! We Doctors who are in reality the people's teachers in a medical sense, have labored hard and long to educate the people themselves that to prevent diseases, or to cure them when they cannot be prevented, in the very beginning, is not a hard job, but that on the other hand to *wait* on them, is death.

Today, I take the liberty of again presenting to your consideration some of the facts that we, as the recognized teachers of the masses, owe our class, as a whole, in regard to the prevention and cure of the next most destructive malady after tuberculosis—that of cancer.

We as professional men know, cela va sans dire, that just as tuberculosis, smallpox, etc., are rapidly on the decrease, owing to the universal educational campaign inaugurated and instituted by the medical profession—a campaign that has swept the civilized world—on the other hand, the rapid increase in the mortality due to cancer has been undoubtedly due

to the fact that we, as a profession, have neglected to enlighten the people on this vital subject. I am aware of course, that the very nature of the disease, the insidiousness of its onset, and oftimes the privacy of the organs involved in many cases, have made an educational campaign much more difficult than was the case in the other diseases mentioned,—but our duty to our patients, who have entrusted to us their lives and health, should enable us to go forth to battle in this campaign, as well equipped and as thorough as in the former diseases.

It is an undisputed fact that all cancers in their beginning are local and if removed while in this circumscribed local condition a very large per cent. are entirely curable. However, Prof. Brand, an authority on cancer says, "Although cancer is purely local in its onset it unfortunately does not remain so, indeed it would be completely under control of the surgeon's knife, and would lose its terrors were it not for the fatal metastases which invariably happen, and with startling rapidity, a fact which is not sufficiently realized by most of the profession. Unquestionably herein we make our fatal mistake, so many of us are apt when brought face to face with a neoplasm to procrastinate, and to dread the necessity of advising the patient what inevitably must be done, and oftimes in the meantime the evil is done, the day of grace is passed, the trouble gets beyond the surgeon's knife and again it is said, by the people, "There is nothing to do when you've got a cancer; you surely must die." Gentlemen, there is no need for the laity to hug to themselves such an opinion if we bestir ourselves and do our duty. I remember that twenty years ago, Prof. Keen, with all the earnestness characteristic of him, said to his class, "Whenever or wherever you find a new tissue formation or a tumor of any kind in human flesh, especially in the mammary glands, never rest, nor let your patient rest, until it is out; if on the one hand it is benign, no harm whatever is done, and if on the other hand, it is

malignant, it can only mean death when undisturbed." The secrets of the microscope have revealed to us the truth of this statement. Today, we know only too well, that the surgeon's knife is the only relief for such troubles wherever located, and we also know that we only lose out when we advise delay.

Dr. Geo. Crile, in a recent article on cancer said, that in his mind it was exceedingly unfortunate that any text book treating of cancer should have ever included glandular involvement and cachexia as symptoms of cancer (and I should certainly add pain to his list,) for when the diagnosis is delayed until these symptoms present themselves, our only remedy is defeated, for operation is useless."

Therefore gentlemen, I urge upon you to-day the advisability of presenting to the people the absolute necessity of the removal of any and all neoplasms whenever and wherever found, calling the attention of the laity to the liability of all woman kind to the disease between the ages of 35 and 50 years. Another fact I would like to emphasize is that we as a profession cannot hope to educate the people up to the point of believing that removal of anything of the kind in its early stages is the only cure as long as there remains one skeptical Doctor within our ranks. We cannot hope to impress the minds of the people at large with this, or any other truth, until we are one among ourselves. "Physician heal thyself" holds good to-day as of yore. I cannot believe that there is before me to-day in this splendid body of high-toned professional gentlemen a single "doubting Thomas;" if there should happen to be *one* I would like in all kindness to call his attention to the statistics on the subject—Cancer is on the *increase* as the statistics show and why? The question I honestly believe after a careful consideration of the subject I have answered. An intelligent laity is the doctors best friend—we have nothing to keep back but all manner of good things to

give out to the enlightened public and it remains with us whether we give of our very best to better our fellow men.

Continually bearing in mind where we cannot heal we can certainly educate to prevent.

Tuesday Evening.

The Secretary: *Mr. President and Gentlemen*: Dr. Knox is Chairman of the Obituary Committee. I had a letter from him this morning stating that at the last minute he was unable to come to the meeting, but that he had forwarded his report to me to be handed to the other members of the Committee—Doctors Laughinghouse and Fletcher.

I have just called up the post office and the report has not come in yet; therefore we cannot have the report as scheduled on the program to-night. I suppose that report will be here in the morning, but I would suggest, Mr. President, that as the hour for its coming before the Society has passed, without it, that it might simply be referred to that Committee, and that we do not consume the time of the Society by reading it.

Dr. Fletcher: *Mr. President*: I know that Dr. Knox has taken great pains with that report, and two or three gentlemen had reports to read, and I move that the whole report be referred to the Publication Committee.

Motion carried.

In Memoriam.

June 17, 1911.

Dr. David B. Jorden, of Cronly, died at the James Walker Memorial Hospital, Wilmington, May 30, 1911, of cancer of the stomach, after a lingering illness of four weeks. Dr. Jorden was a successful physician and enjoyed a large practice, and the confidence and esteem of a wide circle of friends. He was born at Bentonville, January the 14th, 1857. He attended the neighborhood schools where he was prepared for college, and after attending Trinity College two years he went into the office of Dr. John Spicer, of Goldsboro. After spending some time under this preceptor he entered Jefferson Medical College, Philadelphia, Pa., where he graduated in medicine April the 2nd, 1885, and was licensed to practice medicine at Durham, May 21st, 1885.

He practiced for some time at Point Caswell, where he was married to Miss Hettie James Black on April the 30th, 1890, and later moved to Cronly. Dr. Jorden was a member of the County and State Medical Societies, and an Elder in the Presbyterian Church. He is survived by a wife and seven children.

OBITUARY NOTICE OF DR. J. F. SHAFFNER, JR.

Dr. John Francis Shaffner, Jr., who after ten years' successful practice of his profession, departed this life in the city of Richmond on March 24th, 1910, was a native of Salem, and was born on November 22nd, 1874.

On the part of both father and mother he was a descendent of well known families, influential alike in community and church and of that sturdy German Moravian ancestry whose

coming to North Carolina gave to the State one of its most substantial classes of settlers and a community known from the beginning for its industry, culture and highly religious and moral character. His father, Dr. John Francis Shaffner, a graduate of Jefferson Medical College, was for more than 40 years one of the leading physicians of the community, while his mother, Mrs. Caroline Lizetta Shaffner, was a member of the well-known Fries family, pioneers in the wool and cotton industry of the State and now well-known in banking and railroad circles.

From his parents, this son, the youngest of a family of five children, received the inheritance of a strong personality and good intellectual and moral endowments.

His first studies were pursued under the careful instruction of an aunt, who conducted a private primary school for some of her young nephews, and he then entered the Salem Boys' School, where he was prepared for entrance into the University of North Carolina, in which institution he was registered in the fall of 1892. As a student in the University he was popular with his fellows, happy and successful in his work, and came in the course of his stay there to have that love and loyalty for his Alma Mater which comes to all those who are students of the State's splendid institution. While there he became a member of the Sigma Alpha Epsilon fraternity, was awarded one of the prizes in history, and was chosen by his classmates as chief marshall of the commencement of 1895.

Graduating in the spring of 1896, he entered the University of Pennsylvania in the fall of the same year for the study of medicine, having inherited his father's fondness for that profession. While there he became a member of the Stille Medical Society and received his degree of M. D. in 1899. The next year he spent as resident physician in the Easton, Penn., Hospital, and in the spring of 1900 returned to his home, passed successfully the examinations before the State Board, and with great zeal and high hopes entered upon the practice

of his profession, being associated with his father, at that time the senior physician of the community.

On June 19th, 1901, in Kassel, Germany, he claimed as his bride Miss Margarete Schrœder, daughter of Capt. August Martin Schrœder, of the German Army, to whom he had become engaged while she was serving as Sister of Lutheran Deaconesses in the Easton, Penn., Hospital. To their union, in the course of the years, God gave four children, Josephine, Francis, Wilhelm and Fries, who were a source of great joy to the father. He was always happy in their company, as they were in his, and one of the familiar objects to be seen on the streets of Salem was the doctor's buggy with one or perhaps two of his children with him as he made his daily rounds.

In the practice of his profession, Dr. Shaffner showed splendid ability, and his patronage was enjoying an encouraging increase year after year. He loved his work and gave to it his closest attention and best effort. He possessed a happy, cheerful disposition, was kind and sympathetic, and carried these traits with him into the sick room. He was greatly beloved by his patients, and his thorough knowledge of his profession, his natural qualifications and his early successes appeared to mark him as destined to fill a wide field of usefulness as general practitioner and family physician.

Among the medical fraternity he was held in high esteem, both as man and physician, and the future of his work was bright and promising. At the time of his death he was one of the surgeons of the Southern Railway, examining physician of the Aetna Equitable Life Insurance Co., examining physician of the Town of Salem, member of the executive board of the Twin-City Hospital, lecturer in the Hospital Training School, member of the County Medical Association, and since 1903 member of the State Medical Association.

He was also prominent in the affairs of his church, being President of the Board of Trustees of the Home Moravian

Church and likewise a member of the Board of Trustees of Clemmons School, Clemmons.

From the midst of such great activities and a career of so great promise in the service of his fellowmen, he was very unexpectedly called away, on March 24th, 1910, while in the private sanitorium of Dr. Walton, in Richmond, Va., whither he had gone for treatment for a supposed attack of rheumatism. The immediate cause of his death was never fully determined further than that it was due to septicæmia. On Great Sabbath, March 26th, 1910, in the presence of a great company of sorrowing relatives and friends and his brethren of the Forsyth County Medical Association, his body was laid to rest in the family vault in the Salem Cemetery.

In the death of this useful and successful physician at the early age of 35 years, 4 months, and 2 days, his family lost a devoted husband and father, his native town a good citizen and the medical fraternity of his State a worthy and able brother, who in the brief decade of his public practice brought honor to his profession and theirs.

DR. CHARLES DUFFY.

Dr. Charles Duffy, born in 1838, at Richlands, Onslow County, was the second child and eldest son of Charles Duffy, Sr., a man of great physical strength, and exceedingly virile mind, and possessing a disposition prominent for courage, tenacity, energy and honesty of purpose.

His mother, Nancy Caroline Howse, was of Welsh descent, a strict adherent to the moral code, with an energy so remarkable, a judgment so practical and keen, that she naturally proved a most potent factor in shaping the character of the subject of this sketch.

The years of his minority were spent at home. The de-

mands of his father's profession were so engrossing that very early in life the son had the management of the farm, as well as all other of his father's affairs that could be trusted to an assistant, hence his education was beset with many difficulties. A few winter months in which he availed himself of the scant opportunities afforded by the poorly equipped neighborhood schools, a session at Richlands Academy, a part of a session at the Metropolitan Academy and Gymnasium, New York, comprised his educational advantages.

In 1856 with the above opportunities, added to by persistent self instruction, he entered his father's office to take up the study of medicine.

He was then seventeen years of age, possessing a fair education in English, enough Latin to be familiar with the "Eulogues" of Virgil and Aeneid, and such knowledge of the Classics, as a studious mind and tenacious disposition by night reading and self culture could acquire. What he lost in educational advantages he gained in practical business experience and in physical strength.

In 1857 he entered the New York University Medical College, graduating therefrom in March, 1859. With youth, clean habits, a strong body and a clear mind, tempered by constant toil and responsibility—he comes out to make his way in the world. Beginning his professional life in Onslow County we are not surprised to learn that he earns quickly the confidence of his clientele and makes success.

In 1861 like other brave men who gave their hopes, their ambitions and themselves to the Southland, he enlisted in the army of the Confederate States as a private in the Onslow Guards. This military organization was sent almost immediately to a camp of instruction at Garysburg and placed in the fourteenth North Carolina Volunteers. At the organization of the regiment, he was appointed second assistant surgeon. In September the regiment was ordered to Kanawha Valley, he being left behind at Weldon in charge of such sick

and disabled as could not be moved. With his usual dispatch, he quickly cleared the camp of its sick and reported to the surgeon general at Richmond to be assigned to his regiment in Virginia. He was informed that the Confederate States did not recognize his office, and did not need him in that capacity. Whereupon he set out to rejoin his company which he found on Sewell's Mountain.

An epidemic of typhoid fever was prevailing at the time in General Johnson's army and he was detailed to take care of a camp of sick located at Meadow Bluff. A committee was sent by the Confederate Congress to inquire into the cause of this epidemic and to institute plans for the betterment of the troops. The committee after spending several days in investigation established a hospital at Blue Sulphur Springs, and appointed Dr. Duffy to take charge. The hospital was crowded almost beyond its capacity until the winter of 1861 when the troops were withdrawn from this region. Returning to his old regiment, which in the reorganization was the twenty-fourth State Troops, he served until the end of the war, as assistant surgeon and surgeon to the twenty-fourth, forty-ninth and fifty-fourth North Carolina State Troops.

After the capture of Plymouth, N. C., in 1864 by General Hoke's forces, Dr. Duffy was placed in charge of the Confederate and Federal sick and wounded at this point, from here he was ordered to his post in the field, which he reached on the eve of the battle of Drewry's Bluff. From this time until the surrender at Appomatox he was present at every battle participated in by his command.

When the war was over he returned in 1865 to his old home in Onslow County, where he engaged again in his profession until 1870 when he removed to New Berne, where he continued the practice of medicine.

In 1875, his brother, Dr. Francis Duffy, became associated with him, and for nearly thirty-five years, the two have been practicing together in the same office, getting the mutual bene-

fit of a constant change of ideas and enabling each other to follow out his special bent, each turning over to the other the class of cases in which he was the most interested and proficient, thereby promoting the best interests of themselves and their patients.

Since his graduation, Dr. Duffy kept abreast with the many advances of medicine and surgery being an ardent student, a broad thinker and possessing to an eminent degree the capacity of separating wheat from chaff, I know of no one in the State more capable of writing the profession's history in all its details.

He was among the first in the State to be convinced of the communicability by contagion of tuberculosis and strongly asserted his conviction as early as 1862. He also long in advance of his colleagues advocated the open air treatment for this disease. He was a convert to the germ theory from its inception, contending in strong and convincing argument that it gave promise of clearing up the mysteries of all the infectious and contagious diseases. He was among those who early saw that membranous croup and diptheria were due to one and the same cause and pointed out this relation.

In therapeutics he has done most valuable original work. The once fatal malady hemorrhagic fever with its death rate of seventy-five per cent. kills only ten per cent. of its victims now, thanks to the alkaline treatment which he inaugurated. In surgery he has justly earned a high place, doing with deftness and dispatch any operation that fell to his lot. His surgical motto was, "Never shrink from any operation which ought to be done when a more experienced surgeon can not be readily obtained."

In State medicine, as a leader in sanitary and social improvement, his voice and pen have given great help. His address on Alcoholism delivered before the North Carolina Medical Society at Wrightsville in 1902 and printed in the Society's

Transactions, I would commend to the careful study of every man, woman and child in the State.

His practical crusade against mosquitoes in the city of New Berne is well worthy of emulation by any community infested with these painful and disease producing pests.

Through the State Board of Charities of which he was president for many years, he rendered such useful service that upon his resignation from this board there was sent throughout the entire State, resolutions of regret at his resignation and of gratitude at what he had accomplished.

He has been closely affiliated with the medical organizations of his State and County, occupying with credit to himself and profit to the association every position of honer and trust that could be tendered him. He was president of the North Carolina Medical Society in 1878 and 1879.

In 1881 he was married to Miss Sophia Bryan Moore. To this union were born three children, the two youngest, Percival and Mary, dying in infancy. The oldest and now only son, Richard Nixon Duffy, is associated with his father in the practice of medicine. He is a young man of great promise, possessing as he does, his father's prominent characteristics.

Dr. Duffy is a man of high ideals, pronounced capabilities, wonderful energy, unceasing toil, resting only by changing occupation. His labors have brought forth much fruit, and he is rewarded in that he has lived to realize his usefulness and to enjoy that great confidence, respect, esteem and love which is most coveted from one's associates and friends.

CHAS. O'H. LAUGHINGHOUSE.

DR. JAMES A. REAGAN.

Dr. James Americus Reagan, whose life and character we admire and whose demise we deplore, passed peacefully and calmly to the great beyond on October 4th, 1910, at the ripe age of eighty-six years, with a life well spent in the work he loved so well, for the amelioration of suffering humanity, and

with a commendation from his fellow servants and the plaudits of his master, saying, "Well done, good and faithful servant, enter thou into the joy of your Lord."

Dr. Reagan in many ways was a remarkable man. He was always first and foremost in all the educational and civic undertakings, which had for their purpose the advancement and uplift of the community in which he lived. A notable example: When, soon after our unhappy Civil War, which left the country devastated, and us poor indeed, he in company with a few other faithful workers, without endowment and with but little means, determined to rebuild a better structure on the spot where the old one was burned—and Weaverville College is the result of their indifatigable labor.

He took a lively interest in all things pertaining to civic affairs in general. He was a zealous advocate of all means by which the public health was concerned and improved, in the early days, advocating and practicing vaccination and quarantine of infectious diseases, against which in those days there was so much prejudice.

He was a temperance lecturer of no ordinary power, and for half a century he preached and practiced temperance in all things, and greatly owing to his influence the north end of Buncombe County, and adjoining counties, are model communities as regards the drinking of spirits excessively.

For more than fifty years he was an active and zealous member of Free Masonary, rising to its highest degrees in the Royal Arch, and being a charter member of the Blackner Lodge, one of the oldest, he was instrumental and helped to form many subordinate lodges in this part of the State.

During these long years he was also a local minister, and on the Sabbath day when not engaged professionally in medicine, he was wont to preach, always manifesting his zeal and constancy for his Master's cause, which ever characterized him in whatever field of labor he was called to work. He was an exemplary citizen in all the walks of life. He was generous

and responsive to the calls of the public for donations for community interest, exhibiting always a Catholic spirit. He was given to hospitality. His sincerity and faithfulness to his friends and his utter contempt for those whom he thought hypocritical, or were in the wrong, were eminently the characteristics of his private life. He had many virtues and few faults; the former, let us "write on tablets of our hearts, the latter, let us bury in the sand."

But it is the role of the true physician, the doctor of the old school, of whom we wish to speak.

Having received his degree from Shelby College (now Vanderbilt) in the early fifties, Dr. Reagan was an active practitioner of medicine and surgery for more than forty years. When he began the practice there were but few physicians in Western North Carolina; the only ones in Buncombe County, being Drs. Hardy Nelson and W. L. Hillard. Hence the territory which his work covered was immense, extending as it did from the South Carolina line to Tennessee.

That he was an eminently successful physician and surgeon of no ordinary degree, are attested by many living witnesses of to-day. Having none of the advantages which the great advances in the science of medicine have afforded to the latter day students, what he did in medicine and accomplished in surgery are wonderful.

As early as 1863, it was he, with American audacity, who invaded the peritoneum and recorded the first successful capital operation in abdominal section for abscess of the liver. The patient recovered and lived until a few years ago. Many other major and thousands of minor operations he performed, both in gynecology and obstetrics. His knowledge of internal medicine was extensive, being based on his vast reading of the current literature of the Century past, and the wonderfully large opportunities in clinical experience, both of which eminently qualified him as an all-round, good, safe physician. In a true sense, like the picture of Iran McLeurn, he was a doctor

of the old school. He was instant in season and out of season.

Dr. Reagan was a member of A. M. A., North Carolina State Medical Society, and Buncombe County Medical Society, having served one term as president of the latter society. At the 24th session of the State Society, which met in Raleigh, 1885, Dr. Reagan was elected as a member of the board of Medical Examiners. For six years he served faithfully and with distinction in this capacity.

In the heat and in the cold; up the rugged mountain sides; down the sunless valleys; in dangers seen and unseen; in perils oft; though discomfort and vicissitude were his constant companions in his long thirty mile ride on horse back, yet he never faltered; onward, duty, were his watchwords. No matter from where the cry for relief came, be it from the hovel of the poor, or the mansion of the sick, he responded, "without money or without price." In one word, his character can be summed up: He was "A friend to man." And now,

"I see from my house by the side of the road,
By the side of the pathway of life,
The men that press on with ardor of hope
And the men that are faint with the strife.
And I turn not away from their smiles and tears,
Both parts of an Infinite plan.
Let me live in a house by the side of the road
And be a friend to man."

—H. B. Weaver, M.D., *Asheville.*

REPORT OF DR. A. W. KNOX, CHAIRMAN OF COMMITTE ON OBITUARIES.

DR. THOMAS E. W. BROWN.

Dr. Thomas E. W. Brown, of Asheville, died at his home in that city on August 23rd, 1910. He was born in Salisbury, June 3, 1874. He graduated from the University of North Carolina in 1894. He graduated in medicine with distinction at the College of Physicians and Surgeons, New York City, in 1900, and served for eighteen months on the surgical staff of Roosevelt Hospital, where his surgical judgment was recognized and respected.

Bright and genial in disposition, he was loved by all who knew him well. He was an affectionate and devoted husband and father, a sincere and loyal friend. He had a noble and ambitious character, with high ideals and dauntless courage and looked upon obstacles as a stimulus to greater effort until he overcame them. A surgeon and anatomist of great ability, he was thorough in his work and a deep student of medicine. He accepted the Bible in perfect faith and made it his guide through life. In ministering to the sick, he never forgot the needs of the soul. He had great sympathy for the poor and destitute, and in his own modest and quiet way, he often lent them a helping hand, thus proving his Christian faith by his works.

DR. BENJAMIN FRANKLIN WHITESIDES.

Dr. Benjamin Franklin Whitesides died October 2, 1910, at the Whitehead-Stokes Sanatorium at Salisbury, of Bright's Disease and Septicæmia. He was born in Rutherford County, on February 1, 1851. He graduated at the University of Maryland and began the practice of medicine at Fairview, near Asheville, in 1877.

He was married to Miss Minnie Edgerton on October 30, 1879, and moved to Hickory about 1880.

He was President of the Catawba County Medical Society in 1910.

DR. JOEL HILL.

Dr. Joel Hill died in Lexington, of chronic bronchitis and dilated heart on November 21, 1910. He graduated at Trinity College, with the degree of A. B., in 1878, and at the College of Physicians and Surgeons, Baltimore, in 1880, with the degre of M. D. He was licensed in this State in 1885, joined the State Medical Society in 1886, and continued a member until his death.

He left a wife and seven children, all living.

DR. M. P. WARD.

Dr. M. P. Ward, of Gorman, passed quietly away at his home on the morning of January 28, 1911, after an illness of several weeks. He was born near Chapel Hill, on February 1, 1859. He was a faithful member of the Baptist Church and served as a deacon for several years.

He took his medical course at the Baltimore Medical College and had since that time practiced at Gorman, where he had an extensive practice and was very successful. During the past six years, however, ill health compelled him to give up the greater portion of it.

On June 16, 1897, he was married to Miss Ella E. Halloway, of Gorman. Four children survive him—two sons and two daughters. He was a kind and affectionate husband and father. He won the love and respect of all who knew him, and was a tender, sympathetic and generous friend.

DR. JOSEPH M. HOLLINGSWORTH.

Dr. Joseph M. Hollingsworth died in Mount Airy, on the night of April 10th, 1911, or the early hours before dawn of the 11th under distressing circumstances. On the night of April 10th, about 10 o'clock, when last seen alive by his friends, he was in his usual health and spirits, and some time between 10 and 11 o'clock he left his office for his home, two blocks away. He was seen to drive into his lot, but was never seen alive again and his body was not discovered until the next morning, April 11th. It was supposed he died in the act of unhitching his team. He was born in Mt. Airy, September 2, 1865. In 1891 he married Miss Connie Peyton, of Greensboro, who with two children, now lives in Mt. Airy.

Dr. Hollingsworth graduated in medicine at the College of Physicians and Surgeons in Baltimore in 1886, and for five years practiced in and around Mt. Airy, but in 1891 went to New Mexico, where he remained four years. He returned to Mt. Airy in 1895 and continued the practice of his profession there until he died. He inherited from his father a medical and surgical instinct, which made him a successful practitioner.

There was no bigger hearted or more generous man than he; and no man ever lived in that section who enjoyed greater personal popularity with all classes.

DR. HENRY CLAY HOUSTON.

Dr. Henry Clay Houston, of Waxhaw, was born April 5, 1870, and died February 18th, 1911, aged 41 years. He received his literary education at Trinity College and his medical education at Vanderbilt University in Tennessee.

Fourteen years ago he was happily married to Miss Emily Davis, of Waxhaw, who stood by him nobly through the ten years he suffered with pulmonary tuberculosis. Dr. Houston

was one of the kindest of men and always met his friends with a smile. He was candid and free from deception, plain and straightforward in all his dealings with every one. He was a man of fine intellect and splendid character. Honorable, upright, kind and gentle, able to look at every man level-eyed and unafraid, he lived his life beloved by all who knew him.

Though he went to his grave long before the evening shadows of life began to lengthen, he went full-handed, having done each day's work well, serving nobly.

He was a good physician and stood high in his profession. He was a true-hearted friend, an humble Christian, a faithful member of the Methodist church.

His body was borne to Monroe on a special train and buried with Masonic honors.

DR. BRITTON S. UTLEY.

Dr. Britton S. Utley died at his home at Holly Springs on January 19th, 1911, after a period of ill health extending over a year or more. He was born March 13th, 1842, received his medical diploma from the College of Physicians and Surgeons, in Baltimore, and began the practice of his profession in 1878. He was also a graduate in Pharmacy. He was a Confederate Veteran, a member of the 26th regiment. He practiced medicine at Holly Springs for many years and up to a short while before his death, where he had the respect and esteem of all who knew him. He was a member of the Wake County Medical Society from the time of its organization.

DR. THOMAS ROBINSON LITTLE.

Born November 12th, 1874, died November 15th, 1910.

Every physician present has at some time in his life had to give his professional attention to some one especially dear to him, and has had a feeling of lack of ability and self-confidence

altogether foreign to his usual attitude in his daily routine—just such a feeling has taken possession of me every time I have attempted to write about Doctor Little, for during the eight years of my association with him, each year had added greatly to the high value I placed upon his friendship, until this friendship had grown into an affection so strong that I do not yet allow myself to realize my loss; at the same time I feel grateful to the committee for giving me the privilege of honoring him in this manner, and shall attempt to give the Society a brief but true picture of his life.

Dr. Little was born November 12th, 1874 at "Carlisle," the country home of his father, Col. B. F. Little, located at Little's Mills, in Richmond County, and those who remember his parents, their home and its environments, have never wondered at the development of this their youngest son. His father was an officer in the Confederate Army, and one of the most prominent and best beloved men of his day, but Dr. Little was denied the pleasure and benefit of the love and guiding hand of his father, for Col. Little died when Thomas was less than five years of age, leaving the saintly mother to bear the double burden; but she proved herself more than equal to the task, and with the assistance of the older children, the old home was kept in the same hospitable and elegant style, retaining its charm to the present day.

Dr. Little's mother was Miss Mary Jane Reid, of Mooresville. Dr. Little frequently referred to his parents, and always expressed great sorrow that he was denied the association of a father.

The first fourteen years of his life were spent at the old home; a governess looking after the first years of his education, and from his earliest childhood, his quick and wonderfully retentive mind, made learning easy, he being able to do with ease what seemed impossible burdens to older children. His temper was also quick, but so evanescent, that in a moment, the sweetness of his nature banished any ill feeling that his

temper had aroused. This characteristic remained with him through life, but each year seemed to add to his self-control.

Living at this beautiful old homestead, surrounded by only refined people, breathing an atmosphere of purity of thought, and inheriting a spirit of ambition, these first fourteen years moulded his character, and all that was necessary to the finished man, was the dressing and polishing of the academy and college.

Throughout his boyhood his generous nature and ever sparkling brightness made him a favorite wherever he went.

At fourteen, he entered Fishburne's Military School, remaining there two sessions, making for himself lifelong friends of his fellow students and winning the admiration of his teachers.

He entered the University of North Carolina for the session of 1890-'91 and remained there for four years, with an interruption of one year spent on the farm. He took an active part in all the phases of college life, being a member of the Alpha Tau Omega fraternity. Philanthropic literary society, Gimghoul and other organizations. He was also prominent in athletics, but never allowed anything to interfere with his class duties, and graduated with the degree of Bachelor of Science with the class of 1895. His last session at the University was devoted to the study of medicine, and in this year his industry and ability won for him the Harris Medical Prize, and a scholarship to the University of the South, which last honor he turned to one of his friends, who is now a successful physician, and who still appreciates the influence Dr. Little's friendship had upon his life.

In 1896 he entered the University of Pennsylvania, where he completed his medical education, graduating with honors with the class of 1900. His life at Pennsylvania was similar to that at the University of North Carolina, in that he was prominent socially, prominent in society and club circles, but especially prominent in the class room.

Upon his graduation he received an appointment as resident physician at the Presbyterian Hospital, Philadelphia, spending the next year in that position, and leaving there to accept a similar position at the James Walker Memorial Hospital at Wilmington, where he remained until September, 1902. At both of these institutions, his attention to his work and his ability, placed him high in the ranks of his profession, not only as a physician but as a skillful general surgeon.

While in Wilmington he had a severe and protracted case of typhiod fever.

In September, 1902, he located in Greensboro, and was associated in practice with Dr. W. P. Beall up to May, 1909.

On February 20th, 1903, he was married to Miss Lillian M. Heller, of South Bethlehem, Pa., and to her is due much of the credit for the success Dr. Little attained in Greensboro, for she was the "doctor's wife" in the highest meaning of the word; always on the lookout for his comfort, but at the same time stimulating him to meet the burden placed upon him; and knowing her as I do, I feel sure that he looks down with satisfaction upon the manner in which this bereaved woman is caring for his three fatherless children.

Dr. Little was licensed by the North Carolina Examining Board at the Hot Springs meeting in 1903, leading the class, and making the remarkable average of 96 and 1-7. He joined this society at the same meeting, and continued an enthusiastic though modest member to the time of his death.

He was elected Medical Director of The Southern Life and Trust Company at its organization in July, 1903, and the present high standing of the Life department of that institution is but a reflection of the painstaking care, the perfect integrity and remarkable mental ability that characterized Dr. Little in whatever he undertook. He continued as the Medical Director until his death.

In Greensboro Dr. Little rapidly demonstrated his worth,

and was soon recognized as one of the leading members of the profession, his practice rapidly growing each year, until at the time of his death, it had about reached the limit of his ability to care for it.

He was an active and prominent member of the Church of the Covenant during his life in Greensboro, and had served as an Elder since 1908, and the beautiful tribute paid him by his pastor, Rev. R. Murphy Williams, at his funeral, was sufficient to show how dearly his pastor loved him.

On August 1st, 1909, Dr. Little and the writer formed a partnership for the practice of our profession, and during the sixteen months of this association, I learned the worth of this man, and also learned why so many people could never understand him. Naturally sensitive and naturally proud, he never made advances toward anyone, but frequently had the air of haughty indifference, when, in the bottom of his heart, he was exceedingly anxious to be on easy and familiar terms with almost everyone, for he was democratic in his ideas, narrowness and stilted self-importance having no place in his organism.

He was prone to spells of irascibility, and at these times he dealt out biting sarcasm to such an extent, that many considered him a pessimist; and at other times periods of depression made one wonder what there could be in his life that seemed to take from it the proper enjoyment of life; but I believe I understand it all, for with me he wore no veil, and I am persuaded that all of these manifestations of temper, had their origin in physical suffering.

He suffered from frequent attacks of asthma for a few years, but an operation upon his nose two years ago had given him almost complete relief up to a few months before his death, when this trouble again began to harass him to such an extent that he had expected to have the second operation performed upon his nose. He had been kept anxious by a chronic appendicitis, and this too had received the proper operative

attention; but worst of all was a deafness that gave no promise of ever becoming anything but worse, and to this chiefly may be charged most of his pessimistic manner, for in it, he saw an enemy to his ambition, and a blight upon his usefulness. The last two years of his life were certainly freer from moods than were the years preceding, and had he but lived to realize that nothing could interfere with his usefulness, I feel confident that he would have completely cast off all that marred his happiness.

In all of my association with him I found nothing but pleasure and benefit, for his ready wit, his keen insight into human nature, and his unlimited store of information, made him a charming and instructive conversationalist. I have never seen anyone with a higher sense of honor, a more perfect conception of refinement or a purer delicacy.

As I look back over his life, the strength, the innate nobility, the generosity and the unselfishness of the man so completely eclipse the little defects of his nature, that the former will live forever fresh in my memory, the latter are already forgotten.

No physician was ever more beloved by his patients, and rarely does a day pass that I do not see tears spring to the eyes of someone at the mention of his name—someone to whom he had ministered, for he knew how to minister to those in trouble, whether of body or of mind.

His home life was as complete as the home life of a busy physician could be, and no one could appreciate the hours spent at home more than he did. He was a thoughtful and affectionate husband, a devoted father, entering into the little joys of his children as one of them, and never too tired or too busy to listen to their small woes.

Quick tempered and impulsive, but gentle and sympathetic, he promptly healed the wounds he gave. In the sick room, his tenderness was a balm to the suffering, but he also possessed that firmness so necessary in the management of the sick.

His death was peculiarly sad, as it occurred at a time when

his wife and children were out of town, there being no one in the house when he was taken ill, and when his illness became known he was already in an unconscious state from which he never rallied.

The exact cause of his death will never be known, but heart failure of some nature is supposed to have occured, there being an œdema of the lungs at the time the physicians saw him.

In his death we have lost a brilliant member of our profession; one who always stood for progressive medicine, but who under no circumstances stooped to the little polite methods so common among those who must live by their popularity.

Dr. Little is survived by his wife, two little girls, Mildred and Nancy, seven and five years of age respectively, a little boy, Rufus, three years of age, two sisters, Mrs. A. W. McAllister, of Greensboro, and Miss Nan Little of Little's Mills, and two brothers, Mr. Rufus Little of Little Mills, and Rev. Lacy L. Little, a missionary at Kiangyiu, China.

In Green Hill Cemetery at Greensboro, a handsome granite monument marks the last resting place of this noble-hearted man.

EDMUND HARRISON.

INSPECTION OF SCHOOL CHILDREN FOR DEFECTS OF THE EYE, EAR, NOSE AND THROAT.

W. Perry Reaves, M.D., Greensboro.

The inspection of school children for defects of the Eye, Ear, Nose and Throat is now a much agitated question in our schools, so much so that it is included in the examination of the County Superintendent of Public Instruction to test the ability of the applicant's aptness to detect these defects in children.

Will the Medical Profession of our State be the custodians of this great movement or let it fall into disrepute. The Family Physician is the guardian of the family's health and upon his advice or approval will determine whether the child shall or shall not wear glasses or submit to an operation for removing Adenoids and Tonsils.

For five years I have been doing this work in the Thomasville Baptist Orphanage and the past year some work in our county schools, which illustrates clearly some obstacles that must be overcome; if this which like all other great movements, must first be an educational campaign to succeed.

At the Thomasville Baptist Orphanage everything is systematic, discipline is perfect. The school room examinations are made by the teachers and the children that have defects are sent to the Infirmary where I examine them and book them for refraction or operation, after some training the teachers have become very apt in selecting these cases because the symptoms are so exagerated that a layman can detect them. The cases usually bright or have an excellent constitution to overcome the impediments are not detected until something reduces their vitality and the usual symptoms are visible, therefore repeated inspection is necessary. This mode of inspection and treatment is the end results sought by our school

authorities, it is equal to compulsory inspection and treatment. To show you how the system works, I examined in one afternoon 25 selected cases, booked 22 for operation, these were operated upon in two afternoons.

In the public school this is impossible because in America the established law of personal liberty gives to every one the self-elective power to refuse to have anything Medical or Surgical done to himself or family even if it is necessary to protect life. Therefore, the co-operative work of the teacher, the family physician and the trustees is necessary to prevent mental insult being added to physiological injuries.

Inspection of the eyes by the teacher and a report of defective vision to parents gives one of these results. The parent reads the notice and may throw it aside, but more likely will express himself favorable or unfavorable; if unfavorable, usually criticises the teacher by saying "he or she is no Doctor and does not know anything about it;" and the child with delight reports back to the teacher which humiliates them and shakes the child's confidence in them—a good intention with a bad result.

If the parent sees the wisdom of the teacher's note he will consult his family physician or may have his child fitted with glasses by an Optician or an Oculist. Children with twelve or fifteen diopters of accommodation cannot have their refractive errors measured accurately without the use of Atropine or some like drug to temporarily put at rest their accommodation. Therefore, those fitted by an Optician cannot be accurately done, but on the other hand when there is a spasm of the ciliary muscle from irritation the refractive error is increased with glasses. The eyes not improved.

The greatest foe to this philanthropic movement is the traveling Optician that has been made an Optometrist by our Legislative body creating an Optometric Board composed of Opticians to license men to practice this special branch of medicine who have had absolutely no scientific training other than

two years of self education in trying to do refraction and selling glasses as a side line in a store. Which was so accurately described to me by a little patient ten years old. Seeing her glasses were for near-sightedness when she needed an astigmatic correction, I asked her who fitted them, listen to her answer, "Mama had been to the Woman's Betterment Society" and she said she thought my headaches were caused by my eyes, so when Dr. S——, an eye-sight specialist, came to town she had him to examine my eyes and gave me glasses." When I told her there was no such Doctor of that name in that locality, her answer was, "Yes there is for he has a jewelry store in a certain town, and he is a doctor too, for he showed us his Diploma and License."

Where did he get them, did he get the Optomertic Diploma that reads, "Doctor of Optics" for five or seven and a half dollars from the so-called Optometric school through the mail, his certified check the only test of qualification required? Did he get his State license to practice this special branch of medicine from an Optometric Board that knows absolutely nothing of the physiology or pathology of the eyes or the neuro-pathological condition caused by eye strain from refractive errors or the pathologic eye that the vision may be improved by glasses only to cause the patient to wait until medical treatment is too late.

Congress tries to prevent disease by the Pure Food label—ought not our great State be as considerate of her children and make it a misdemeanor for any Optician to label himself Dr. or Doctor, thereby soliciting business and selling glasses under false pretense; for example, I saw one case of Syphitic Optic Neuritis treated by three pairs of glasses and murine eye drops till sight was reduced to object, when two dollars worth of medicine would have saved his sight. In another case a foreign body in the lense causing a severe cyclitis treated with the favorite murine for most three weeks so that he could fit glasses, before the patient learned the difference be-

tween an eyesight specialist, no case too difficult, relief or no pay, and an Oculist. Opticians are a public necessity and I for one say let them fit and sell glasses to any one who wants their services, but in justice to the public the State should make his Pure Health label read "Optician" and not "Doctor" to protect those who are seeking a physician.

A report to the parent that his child has some Ear, Nose or Throat trouble, may meet with indifference or say the teacher does not know, but in most cases will consult his family physician and upon his advice will determine whether or not Johnny shall be operated upon, but this is not all, it will determine the progress of this educational movement.

The State Normal College at Greensboro, has connected with it a training school for teachers, about 40 of the Senior Class do a certain number of hours of teaching during their Senior year—and about the same number of teachers take a six weeks course during the spring term.

Last December through the kidness of Professor Matheson I set about the task in the training school to see the practical working of the system. The teachers had studied the health bulletin and to my surprise each teacher's personal equation as to what symptom indicated some Ear, Nose or Throat trouble was at such a variance—when all had studied the same instructions. Seeing the confusion and looking for the cause, I decided they were suffering like the freshman medical student, every disease the Professor lectured on he immediately had it. So the children that were lazy, inattentive, mischeivous, nervous or indifferent, whether from poor food, Tuberculosis, Hook worm, or Malaria were the first victims the teachers wanted examined; demonstrated that the teachers were making their diagnosis from subjective symptoms instead of objective, doing post graduate medical work instead of freshman work. Had the parents of these children been sent the notice of some Ear, Nose or Throat trouble from 30% to 50% would have been wrong.

Therefore, this vision chart for schools was given them with instructions to send only those in for examination that they found by inspection an affirmative answer to one of the following nine questions which are really objective test, except question three.

(1.) Does the pupil habitually suffer from inflamed lids or eyes?

(2.) Does the pupil fail to read a majority of the letters in the number xx (20) line of the Snelling's Test Type, with either eye?

(3) Do the eyes and head habitually grow weary and painful after study? (Afternoon).

(4) Does the pupil appear to be crosseyed?

(5) Does the pupil complain of earache in either ear?

(6) Does matter (pus) or foul odor proceed from either ear?

(7) Does the pupil fail to hear an ordinary voice at 20 feet in a quiet room? (a watch at four feet is a good test) each ear should be tested by having the pupil hold his hand over first one ear and then the other. The pupil should close his eyes during this test.

(8) Is the pupil frequently subject to "colds in the head" and discharges from the nose and throat?

(9) Is the pupil an habitual "mouth breather?"

This method which is one of elimination dealing with objective symptoms made the teachers report of those sent in practically all positive. Of course those with the defects without the objective symptoms were not detected. About 10% of the pupils showed defective vision, 6% had vision in both eyes below $\frac{20}{30}$, 3% had vision from $\frac{20}{40}$ to $\frac{20}{70}$ which was so poor that black board could not be seen from their seats. If 75% of knowledge is through the eyes how much are these poor children losing for the want of glasses? not to mention a discomfort, pain and poor health which is its logical sequela.

The training school made arrangements to have 16 of the worst cases refracted free of charge, the only cost to the parent was to pay for the glasses which could be furnished as cheap as $2.00. In May, 5 months later, 25% of the 16 had been refracted and fitted with glasses.

About 30 Ear, Nose and Throat cases were sent in for examination, twenty found to need surgical treatment. Thirteen of the worst cases were taken in group number (1). The parents were sent a notice with the request to call to see Prof. Matheson, and most of the parents came the following day, when Prof. Matheson and myself explained and showed them why their child should be operated upon. Knowing the first objection would be the cost of the work, which was met by informing them that the training school had made arrangements to have 12 of the worst cases operated upon without cost to the parent except $5.00 for operating room, and the $5.00 for operating room could be paid at their convenience, (only three have found it convenient to pay.) In this way nine consented to the operation.

The following day group No. 1 was taken. Pupil No. 1 increasing the group to 13, was brought in by her mother who had heard of the examination. Seven have been operated on. One had two different engagements for operation but at the time was in bed with a cold, later her parents decided she would outgrow it. The others reported that their family physician said that they did not need an operation, (same physician in both cases).

Records of the 13 Pupils.

No. (1): Female; age 10; 3rd year in school, 3rd grade. History: Head colds; slow; hearing bad. Diagnosis: Large tonsils and adenoids. Treatment: After two engagements for operation refuse to have it done.

No. (2): Age 8; 2nd year in school; in lower first grade. History: Sniffles; stammers; colds. Dagnosis: Large ton-

sils and adenectomy. Reports at close of school, had advanced more in 5 months than in one and a half years before.

No. (3): Male; age 14; 5th year in school; 5th grade. History: Hearing not good; inattentive; mouth breather. Diagnosis: Large tonsils and adenoids; chronic catarrhal otitis. Theatment: Tonsilectomy and adenectomy. December 27th, 1910: Hearing, R. E. watch, 10 inches; L. E. watch, 15 inches. May 23rd, 1911: Hearing, R. E. watch, 9 feet; L. E. watch, 12 feet. Hearing improved almost one foot for every inch. Has gained 10 pounds in weight. General appearance changed from a Hook type to a healthy, rosy cheek lad. School report before operation, was hard for him to make his grades; after operation, was never again sent to office for failure to do work; improvement in hearing wonderful.

No. (4): Age 7; 1st year in school; 1st grade. History: Head colds. Diagnosis: Large tonsils and adenoids. Treatment: Tonsilectomy and adenectomy. May school report: Promoted to second grade; much better attendance; physical condition improved.

No. (5): Female; age 10; 3rd year in school; 2nd grade. History: Earaches; mouth breather. Diagnosis: Adenoids; V-shaped arch of hard palate; hole in septum; adenoid facies. Treatment: Adenectomy. May report; Promoted to 3rd grade; before operation reports poor; after operation, good and excellent; seems much stronger.

No. (6): Male; age 6; 1st year in school, 1st grade. History: Sniffles; stammers. Diagnosis: Small imbedded tonsils; large adenoids. Treatment: Tonsilectomy and adenectomy. May school report: Not promoted, but work and condition and physical condition improved.

No. (7): Female; age 8; 3rd year in school; 1st grade. History: Hearing not good; inattentive. Diagnosis: Tonsils and adenoids; V-shaped arch. Treatment: Tonsilectomy and adenectomy. May school report: Promoted to second grade; work is much better; still inattentive, because of habit

acquired. The inattentiveness is not from habit, but because her hearing is not yet normal. R. E.: Before operation watch 24 inches; after operation, 48 inches. L. E.: Before operation watch 20 inches; after operation, 40 inches. This is not normal hearing for a child.

No. (8): Female; age 9. History: Bright; nose trouble. Diagnosis: Adenoid; left side ethmoiditis. Treatment: Refused.

No. (9): Female; age 11; 3rd year; 3rd grade. History: Nasal voice; bright. Diagnosis: Medium tonsils; large adenoid; V-shaped arch; fish mouth, with protruding teeth. May, she reported that her Mama was going to have the dentist straighten her teeth, which is expensive, painful and long duration. The only rational treatment would be to remove the adenoid, establish nasal breathing so the upper teeth would be in contact with the lower which would cause a spreading of the V-arch.

No. (10): Female; age 8; 2nd year; 1st grade. History: Hearing not good. Diagnosis: Tonsils and adenoids, eustachian and middle ear catarrh. Treatment: Tonsilectomy and adenectomy. May school report: Promoted to second grade; work, hearing and general condition improved. R. E.: Before operation, 2 feet; after operation, 8 feet. L. E.: Before operation, 3 feet; after operation, 7 feet.

No. (11): Female; age 10; 5th year; 4th grade. History: Inactive. Diagnosis: Large imbedded tonsils, medium adenoid, general condition below par. Treatment: Refused.

No. (12): Male; age 7; 1st year; 1st grade. History: Headcolds. Diagnosis: Tonsils and adenoids. Treatment: Refused.

No. (13): Male; age 19; 2nd year in school; 1st grade. History: Earaches. Diagnosis: Imbedded tonsils; large adenoid. Treatment: Refused.

No's. 2-3-4-5-6-7 and 10 had operations.

No. 3: Hearing improved for watch 1000%.

No. 7: Hearing improved for watch 100%.

No. 10: Hearing improved for watch, one ear, 300%; the other, 133%, with increased mental activity and improved physical condition.

No's. 2, 4, 5 and 6: Physical condition and class work much improved.

These cases have been given a chance to make good both mentally and physically and with proper breathing are greatly protected against any repiratory catarrhal or ear trouble.

The six untreated cases, some of them with proper care, will grow up strong with no apparent bad results, the others may have as a memento for their parents fully the fish mouth, plus bad teeth, chronic catarrh, poorly developed lungs and sooner or later defective hearing.

Does this not demonstrate that the sins of omission are greater than the sins of commission. Therefore, our only hope is one of education.

The apparent per cent. of failures is not discouraging, for I know of several by this stimulation acted upon their own initiation and had their children treated, could then or soon would be, recognized by the simple school test of inspection.

Now to the meat of this paper. Forty seniors to be teachers have had instruction and demonstrations in selecting and testing these defective children. Their class work and history studied, 13 selected cases were taken in a group and during the Christmas holidays the operative work was done. In May, five months later, 11 of the group were re-taken. The records before and after are convincing. In the first group the pictures are too small to show the adenoid facies well. Group No. 3 is a sermon in itself, 8 of the 11 have the typical adenoid facies. This group was taken at Pleasant Garden School, 7 miles out of Greensboro. During the winter it was impossible to get the group for some were sick with colds all the time. This group was taken in May at Sunday School.

In May about 40 teachers were taking a six weeks course at

the training school. Instructions and demonstrations were given to them with the group before operation, and the children as they appear in the group after the operation, this practical demonstration was very valuable. Those that had been operated upon, the former history and present results given. Those that had not been operated upon still showing the defects for comparison.

Now gentlemen, success or failure of this great movement depends upon you, especially those of you who do not practice in the towns. These teachers are required to make these tests, most of them will, and without your hearty co-operation it availeth nothing. Therefore, I have advised the teachers whenever practical, to always seek the advice, co-operation and council of the physician or physicians in that locality. Then by making the report from the finding of the objective test there will be accuracy and harmony and a few positive cases in each school, will in a few years educate the teachers, the children and parents, the essential to success.

In a recent interview with President Foust of the State Normal College, he informed me that from 100 to 150 undergraduates every year taught the following year and during the next session lectures, instructions and demonstrations would be given them in making the tests for these defects in school children. In this way 150 to 200 teachers will be trained every year at the State Normal College, and the training school to make the examination for these defects.

The Health Bulletin sent to every teacher by the Superintendent of Public Instruction and the other methods of instructing the teachers will train those already in active teaching for this work.

"The Relation of the Doctor to Public Health as Regards Tuberculosis." Dr. Thomas M. Jordan, Raleigh.

"Inspection of School Children for Defects of the Eye, Ear, Nose and Throat." Dr. W. Perry Reaves, Greensboro.

Dr. Russell: *Mr. President*: I enjoyed both Dr. Jordan and Dr. Reaves' papers and I feel the necessity of saying something.

A child will study under the best advantages when its body as well as mind is educated. A poorly lighted and badly ventilated school-room will have just as injurious effect upon a child's body and brain as an absence of moral example. A sound mind in a sound body should be the chief aim of an education. Fresh air and open air school-rooms have done great things throughout the country. It has been found that many children are backward because they are improperly fed and for the lack of fresh air. The parents are ignorant in regard to the right food and air, and the school age is the time children suffer most. Let the doctor speak out for these men and women that are to be. Their physicial welfare is just as important as what little they get from books. Tuberculosis will develop in these little fellows later.

Notice your children when they return from these school-rooms, they are so cross and irritable you can hardly talk to them. Out in the fresh air he is as happy as a bird, and that is where he belongs. Schools should be out in the woods for the first few years.

Dr. Woods Hutchison in his fine article in the July Cosmopolitan on "Danger Signals in the Kindergarten Age," is worth reading.

Dr. Evans of Chicago writes about the experiments that have opened the eyes of the world to this great fact to save our boys and girls. The examination of the eyes of children shows that all have the same shape to start with. Those who develop myopia and other troubles are the ones who are put in school too early and hours too long. Give the child plenty of air and more to eat and he will learn more not less because he is not in a room all day. It has been shown by actual trial that open air schools are best in every way. The schools should last two hours, the balance of the time devoted to gardening, carpentry,

study of the woods and birds. Dr. Hutchison thinks that three meals a day are only starters, a lunch between, or five meals at least. We all know that there is no truth in the saying that the stomach has to save an interval of rest between tasks. The empty stomach has no gastric juice. I am sorry it is absolutely necessary to inspect these little people but go to our closed up school rooms and there will be lots of trouble. The eye is not developed before the tenth year, so we find many errors of refraction all of which should be corrected with proper glasses. Many who are thought to be dull are only suffering from an eye strain. A boy who is myopic will not see well, but the astigmatic and hyperopic may see as well as a normal eye, but that is the eye that is unconsidered. A patient told me a few days ago that she had not had neuralgia since having her eyes corrected by glasses two years ago, and up to that time she had never experienced any relief. Eye strain should be looked for as it is the cause of much nervousness, headaches and stupidity.

The nose, throat and ear should come in for a thorough looking over. Tonsils and adenoids are quite often the cause of many troubles. The child's ears are bad because of this condition. Backward children are often made just the opposite by removal of this abnormal tissue. If the Eustachian tube is pressed upon by an adenoid mass or swollen mucous membrane there is ear trouble sure, an earache, dull hearing or loss of hearing and often loss of life. I see cases every few days of discharging ears, more or less deaf, that are cured for good by removing the tonsils and adenoid tissue. Absolute good nasal respiration is necessary for hearing as well as good lungs and good health. I mean the nose, naso-pharynx and all must be well open. Slight colds and allowing the child to breathe through the mouth instead of the nose results in this naso-pharnygeal space being filled with hyperplastic lymph mass called adenoid. People must be educated to the fact that an earache is not a simple thing, and it is a serious thing to find out later in life that the hearing is gone when it could have

been prevented by the removal of the adenoid and tonsils before the tenth year. The removal of these growths result in subsidence of the inflammation in the middle ear, both in children and adults. I mean complete removal. Many do not remove the mass, only a part of it. I do not mean this partial removal does no good, the adenoid should be removed from the fossæ of Rosenmuller and kept clean. The removal of the tonsil should be done, slicing off a part of it does not amount to much. Remove the tonsil in its capsule and do not cut the pillars or damage the throat. The tonsils are a menace to health and should never be allowed to remain. Roosevelt's life is an inspiration. He was not a strong boy but he went to the wilderness and grew strong. There is so much in nature that our children may learn thereby training both the mind and body. Lets have less books and more natural work for our boys and girls.

"Inspection of School Children." Dr. I. M. Taylor, Morganton.

Mr. President: I don't see in my practice the children of school age, but I do see the end results of the conditions which have been spoken of in these three papers. I might say, for it is fortunate that Dr. Stewart's paper just preceded these by Dr. Jordan and Dr. Reaves.

Practically all of us possess a faulty heredity. Fortunately it is modified by the laws of natural selection. The bad man does not always select a bad woman for a wife, but ordinarily selects a good woman, and I believe in up-breeding as well as down-breeding, and I believe the race is being built up in many directions.

Any irritation is a factor in the production of mental and nervous diseases.

The insane and nervous person is created by the heredity, by the environment and the stresses. It is impossible for us to correct the heredity, but we can correct the environment and the stresses. Of course we know we could not put a person

with a predisposition to drink safely in a bar room, because naturally the environment would lead to drink. We could not give the stress of alcoholic administration without danger, but we can keep the child with heredity for alcoholism and the nervous heredity away from the environment and away from the stresses and we can make the man—not perfect—but much better than it seems possible at the beginning of his life.

The strain which comes from faulty breathing and faulty eyesight is a great factor, I believe, in the production of nervous and mental diseases—the diseases which are increasing so rapidly in this generation—and it is during school life that we must make these corrections. I know I have seen two cases of advanced insanity produced absolutely by eye strain; by the failure of correction of faulty eye-sight in youth, which has been more and more emphasized until adult age, and insanity developed. Therefore I am on my feet today to endorse what has been said in favor of school inspection, and about the open air during school life.

Dr. Reaves: I have nothing to add, only to thank the gentlemen for discussing my paper.

Dr. Faison: *The President*: I wish to say to those present to look around you and see the size of this audience today. During the year you will receive a printed copy of the recommendations of this special committee in regard to a little change in the constitution and by-laws. You will find in that the first and second days will be taken up entirely with scientific work and that all elections will be held on the third day, and that the principal elections will be in the general body. If that were the case to-day we would have a house full, but the elections are over and the people are gone.

The chair will appoint Doctors Crowell and Ragsdell to conduct the newly elected President to the chair.

The President: Dr. Kent, it affords me great pleasure, Sir, to turn over to you the gavel of this Society, feeling as-

sured that in so doing it is passing into competent hands. I bespeak for you the hearty co-operation of every member of this Society, and trust that the coming year may be for you the best in the history of the Association.

Gentlemen, again I want to thank you for the honor you conferred upon me in making me President. My efforts have been feeble, but let me say my intentions have been for the very best interests of the medical profession as a whole.

I introduce to you our newly elected President, Dr. A. A. Kent, of Lenoir. (Applause).

Dr. Kent: *Mr. President and Gentlemen of the North Carolina Medical Society*: I wish to express to you my most profound appreciation of the exalted honor which you have conferred upon me in selecting me to be your presiding officer. I cannot conceive of an honor to a North Carolina doctor more to be appreciated than to be made President of what I believe to be the grandest organized body of men in the State of North Carolina. (Applause).

I cannot understand why you should have elected me to fill this exalted position. I feel that you have been exceedingly indulgent to me in my weakness and shortcomings, and that you have greatly magnified my feeble efforts in my work as a member of this Society. But I want to assure you that whatever it is in my power to do, I shall do, during the coming year for the best interests of the members of this Society, and for the general welfare and upbuilding of the interests of the medical profession of all of the State of North Carolina.

I shall need your sympathy and co-operation, and I shall ask it at all times. I shall also endeavor to enlist the sympathy and co-operation of the many good men in the profession of the State who are not as active in the Society work as we would like to see them. I want to say also that I shall endeavor in every way that is within my power to aid the great health work which has been begun within the State of North Carolina. I look upon it as being the greatest work for good which is be-

ing done in the State to-day. And while we are doing for the people what the medical profession is doing through its Health Organization in the State, I feel that we need more the sympathy and co-operation of the people of North Carolina. We have need that the people of North Carolina should understand more fully than they seem to understand the great work which the medical profession has instituted and is carrying forward in the interest of the people of the State; and I shall endeavor in some way to weld a bond of sympathy between the profession as represented in the State Society, and all the people of the State of North Carolina.

I thank you again, fellow members, for the great honor which you have conferred upon me. (Applause).

Dr. Faison: *Mr. Chairman*: I don't know that I am in order, but as this is the subject in which I move and live and have my living, in this State, I want to express my sorrow that the section of Pediatrics should die such a lamentable death. The subject of Pediatrics in the State of North Carolina never has been recognized and treated like a living subject by the medical men or by the Society of North Carolina.

The subject of Pediatrics—and I hope in the change next year we may get at it to say something—and I hope, if I am not dead, to be in the fight in the change of this constitution.

I believe, and I want to insist, on the fact that a man ought to be put on the board of medical examiners who should take children as one subject instead of two little questions. It is the beginning of life; it is the handling of a class of people that is going to make folks for us to practice on in the days to come. It is the beginning of the preparing of a race that can live and be men and women, therefore it makes my heart sad to stand here and hear every question pertaining to children in North Carolina called out and not one single word in their behalf; and I want to say that I hope the Secretary next year will put this section on children on Wednesday morning, when the politicians are going to be here and tied so that they cannot get

away. They came around here and ran around like pigs in a pen, and just as soon as the politics are over, they are gone home. There are not two politicians now in the sound of my voice. The loaves and the fishes have been distributed and the recipients are gone.

Now, Mr. President, I am a plain-spoken man. I say what I please, and I am not asking for anything, and this crowd will never grant me anything because I am plain, and I don't want it, but when I see things like that go, I have something to say. The poor children in North Carolina have suffered at the hands of the medical profession long enough. They have been left to the old black mammy too long. Are you surprised when I tell you that throughout the length and breadth of the commonwealth of North Carolina a great many medical men will say, when children come to them, "Go and tell your old Aunt Dolly to take care of them. She knows more about it than I do." Gentlemen, if I had to make such a statement I would throw down my profession and go and handle something else. If I have not more ability to handle children in North Carolina than all the women outside of the medical profession, I would quit.

Dr. Shoemaker: *Mr. President*: It seems to me that if you are going to annihilate the sections you will have no meeting left. Every time you merge your sections into a general meeting you will have just about a corporal's guard. I would like to see Dr. Faison get up a children's section and keep it.

A resolution setting forth the appreciation of the members for the entertainment afforded them while in Charlotte, was adopted by the Society as follows:

"Resolved, that the thanks of the Society are due, and are hereby tendered to the citizens of Charlotte for their unprecedented kindness and hospitality shown the members of our Society during our stay in their midst; to the press of the city and the State; to the railroads; to the managers of the South-

ern Manufacturers' Club for the splendid entertainment given the Society; and to any and all others who have in any way contributed to our pleasure and comfort."

Dr. Geo. S. Attmore: I second Dr. Faison's motion. I am like a fish out of water. I come from very near the water, where the Neuse river is nearly eight miles wide, and I feel grateful to these people for the reception at their hands.

I traveled three hundred miles and am very much disappointed to find on the closing day we have such a small audience that I absolutely feel I have not been rewarded for the great effort I had to make to get here. I came here to keep quiet. I have always been a quiet man, and a man of action.

I am sorry, as Dr. Faison has said, that the diseases of children have not been given more attention. In other words, that those who should be on the firing line have gone away; and I don't know how to express my disappointment when I hear name after name called and they are all gone.

Dr. A. J. Crowell: *Mr. President*: While the Society is expressing its appreciation, would it be out of order for the Society to go on record as appreciating the excellent work done by the State Board of Medical Examiners? They certainly have made an advance forward in the work of examinations, in that they are making those examinations so practical,—making them not only theoretical but practical; and I do not know that it would be out of order to express our appreciation of their work, and I move that that be added to the resolutions of thanks just read.

Dr. Faison: *Mr. Chairman*: I want to object to that resolution. No man thinks more of that Board than I do. They were elected and put there to do their duty. They do not need an expression of appreciation that they have done their duty. If they had not done their duty I would stand here and help to cuss them out. I am sure no man of the Board would want this expression of thanks to go in the minutes. It has been voted down time and time again, in this meeting.

I hope the Doctor will withdraw that, because I am satisfied in my mind, after seeing it done so many times, that if one of them were here he wouldn't want it done.

Dr. Crowell: *Mr. Chairman*: I didn't offer any resolution. I just wanted to know if the Society recognized the work that the Medical Examiners have done. I think it is certainly very commendable in these men on this Board. Of course they are appointed to do that, but it will not hurt them to know that we approve of their work.

Dr. Faison: *Mr. Chairman*: There is only this: That if the members of this profession will walk up to those men,—as I have already done—and thank them personally, they will not want this. They are too broad gauge for this. I hope this recommendation will be withdrawn.

Proceedings in Section of Anatomy and Surgery.

Wednesday, June 21, 1911, 10:00 A. M.

The Chairman of the Surgical Section, Dr. W. A. Graham, of Durham, being absent, Dr. R. L. Gibbon, of Charlotte, presided as Chairman.

RAYNAUD'S DISEASE WITH REPORT OF A CASE.

ANNIE ALEXANDER, M.D., CHARLOTTE.

Raynaud's disease is a disease of the vaso motor system, a vaso motor neurosis.

This disease is characterized by three phases—local syncope, local asphyxia, and local gangrene.

Local Syncope: This condition is seen most frequently in the fingers and toes. The part becomes waxy white, cold and insensible to pain, touch or heat. The palor may continue indefinitely or only a few hours. Then a reaction occurs and the part becomes burning hot and red. One finger may be waxy white, one red, one plum color.

Local Asphyxia: This usually follows local syncope. It may be independent. The fingers and toes are most often affected. Spots may be seen on the arms and legs, ears, tip of nose. The parts may be perfectly livid, capillary circulation stagnant, and without sensation. The swelling causes pain and stiffness. There may be violent paroxysms of pain.

Attacks may come and go for years. Exposure to cold brings on an attack. The condition is worse in winter as a rule.

Local Gangrene: This some times follows local asphyxia. It is usually superficial, although the whole hand or foot may be lost. Small necrotic areas may be on the nose, ears or on different parts of the limbs, or trunk. The disease however, is usually confined to the limbs below the knee or elbow.

These conditions of syncope, asphyxia and gangrene may be symmetrical; just as often they are not.

The general health of the patient is generally good. The accompanying pain may be so severe as to cause loss of appetite and sleep and loss of flesh.

Mental torpor, loss of consciousness, delirium, epilepsy, hemiplegia, and hæmoglobinuria have been reported in some cases.

The pathology of this disease is obscure. Local syncope is produced by contraction of the vessels. The asphyxia is probably due to dilatation of the capillaries and smaller veins with spasm of the smaller arteries.

There may be three degrees of congestion in adjacent fingers. One may be swollen, intensely red, vessels distended, anæmia by pressure instantly obliterated, the adjacent finger equally swollen cyanotic, stone cold, anæmia by pressure very slowly obliterated, and a red, swollen spot adjacent to either of these, as in my case, over a metatarsal bone. The obliteration of the pressure anæmia took about one-half the time as that of the asphyxiated toe.

Raynaud's disease, erythromelelgia, acrocyanosis chronica and allied conditions are angioneuroses, rarely due to some central nervous affection; most usually due to some independent form of vasomotor disturbance.

Erythromelalgia and Raynaud's are often associated with one another.

Report of Case.

April 22 I was called to see Mr. G., a German Jew, 30 years of age. He gave the following history: Six years ago, one year before coming to America, while in Liverpool, he had painful red swollen spots on his legs and arms, his fingers frequently swelling, stiff and painful. This condition coming and going, kept up several months, especially during the cold months. Three or four years later while living in Michigan, near the great lakes, the trouble returned during the cold months. Eighteen months ago, during the cold months he began having the same condition, getting relief as the weather got warmer. Physicians in Liverpool, Michigan and Charlotte treated him, calling the disease rheumatism.

The present attack began in December, 1910. First, his hands began troubling him from exposure to cold and putting them in cold water. The fingers would swell, become red and burning. After a few hours or a day this would pass off to

return in a few days. Swollen red spots would come and go on legs and arms. Some times these spots would be dark purplish red.

In January he began to have a condition of local syncope of the fingers of both hands. The fingers were waxy white and perfectly insensible to touch or heat. This condition at times would be symmetrical. The syncope would last several hours or a day or so. As the circulation returned he would have tingling, burning pains changing to violent boring pains. The same condition of things went on in the feet, getting better and worse, never getting entire relief.

When I first saw him the disease was in all of his limbs. The thumb and index finger of left hand were swollen red and painful, painful spots on right arm and leg; right foot swollen slightly and painful. Left foot: second and third toe and one-half of great toe in a condition of asphyxia—black, cold and dead.. Pain in the foot different kinds of pain, burning, and now and then violent paroxysms. This condition of asphyxia had been present three or four days. The other one-half of the great toe and the fourth toe were bright red, the little toe was normal. The capillary circulation in the asphyxiated toes seemed almost nil. Anæmia from pressure in the great and fourth toes was obliterated instantly. There was a red spot over the instep, the pressure anæmia was obliterated more slowly, showing three grades of congestion.

I ordered this man 1-100 grain nitroglycerine every three hours; hot foot baths and gentle massage of the foot twice daily. By the third day the picture had changed. Instead of the black, dead toes, they were burning red hot. In a few days the trouble in the other parts had about subsided. I thought my patient would soon be cured. May 4th a little brown spot appeared near the end of the third toe. In a few days it turned black; the end of the toe was gangrenous; suffering intense. The foot began swelling and in a day or so the whole foot was tense and very painful. Ten days later this swelling was nearly

gone. Again I was hopeful of curing my patient. Again the trouble increased. The great toe showed gangrenous spots.

Condition June 6th: End of third toe gangrenous and extending, three necrotic spots on great toe, the other normal, foot and leg swollen to knee. He suffers great pain, requiring almost daily doses of morphia. The man is loosing flesh and strength and looks ill.

June 16: Swelling gone from the leg. Little swelling in the foot; third toe gangrene well back on middle phalanx; blebs on second toe; two necrotic spots sloughed out on great toe. The man looks ill; gets little sleep; been delirious past four or five days; occasionally he has fever; temperature running 99 to 100.

Dr. Addison G. Brenizer, Charlotte: I also saw this case, with Dr. Alexander, and it appeared to me a typical case of Raynaud's Disease. This is the fourth case I have seen; one in Baltimore in Cushing's Clinic, one in Heidelberg, and the third and fourth here in Charlotte,—the last being this case with Dr. Alexander.

My first case was that of a young man who had been carrying on winter sports in Canada. While skating he experienced a violent and sudden pain in his right leg and foot; this leg gave way under him. He was carried home and the foot and leg first looked white, felt cold and later became purple. After several days, the foot became gangrenous, when he appeared at Cushing's Clinic in Baltimore. The patient gave a previous history of attacks of pain, coldness and numbness in this leg and foot. On examination a high blood pressure and rather marked arterio-sclerosis was made out. Here was a case of high blood pressure, arterio-sclerosis, arterial spasm, pain and ischemia, and at the last a continued spasm followed by gangrene over the foot.

The gangrene became localized, under bandaging with aluminum to the fore foot and toes, and the case improved under

nitrites. It was necessary to remove the foot. The second case had a similar course. The third case developed to gangrene in one foot and a part of both affected ears fell away. The last case (this one of Dr. Alexander's) showed, when I saw it, a localizing gangrene. I should suggest bandaging the foot with cold compresses of a two per cent solution of aluminium acetate, the giving of sodium nitrite for its more lasting vasculardilatory effect, then nitroglycerine, and finally amputation of the foot. I think in such exaggerated cases, amputation is inevitable. This was certainly true in all the cases which have come under my observation.

Dr. Dixon Carroll, Raleigh: The case that came under my observation showed no gangrene. When she was quite a small girl, so far as I have discovered, there has been no especially high tension at any time, and a peculiarity is that it affected her eyes first. Her eyes were very much swollen, her lips cyanotic, and also ends of fingers. The patient has, besides Raynaud's Disease, scirrhosis and arthritis. It seems that these three diseases must all be of one origin, or neurotic. One peculiarity is discoloration of the face. The eyes are black, as from a lick on the face and swollen. and besides there is a deposit on the face like soot. It has been a very interesting case to watch. I saw the patient a few days ago, and her temperature was normal.

Dr. Annie Alexander: As to Dr. Brenizer's suggestions that it would be better to use cold compresses, instead of hot applications, I would like to say that this man could not even stand the least bit of cold air to him, and he seemed to get the most relief from nitroglycerine. He sleeps with his foot out of bed, and keeps all the windows down tight, and the door closed. He can not even stand a breath of air.

Dr. R. L. Payne, Norfolk, Va.: As to Dr. Dixon Carroll's remarks on her case of Raynaud's disease, I have frequently seen cases similar to the one she has mentioned, and which I have treated as angeo-neurotic œdema, and these cases

have yielded more or less constantly to treatment. I do not believe that they should be classed as cases of Raynaud's Disease.

I have only seen one case of true Raynaud's Disease, and that affected both feet.

I believe the rule is that Raynaud's Disease is symmetrical. In these particular cases, the pain came on in the feet and finally terminated with gangrene, going up to the metatarso-tarsal joint in each, requiring amputation.

I believe that in all cases Raynaud's disease is symmetrical, but I should like to hear someone more familiar with this condition than I am, discuss that particular point.

BACKACHE FROM A SURGICAL STANDPOINT.

James M. Parrott, M.D., Kinston, Chief Surgeon Memorial Hospital.

Many years ago the profession, strange to say, held the opinion that "backache" indicated "kidney disease." Just why no one knows. From a clinical standpoint, there is nothing relative or in common between them, except the very vague indefiniteness of each expression.

Later, after much reasoning, the doctors arrived at the conclusion that a pain in the back, unless due to an injury, meant an anomalous attack of rheumatism, and called it Lumbago, due either to trauma or "catching cold." They varied the monotony of this diagnosis under certain conditions as after railroad accidents and called it traumatic neurasthenia, or, according to the nomenclature of the medical expert, railroad spine.

I regret we have not yet gotten away from this rheumatic or traumatic idea, though we seem to be moving forward. Here and there we find a physician who takes the same view of a pain in the back which he takes of every other pain, namely studies it carefully and seeks to find the real cause. To the doctor who seeks to discriminate these pains in the back offer great reward by unfolding before his professional view a panorama of great interest and much value.

It is really fascinating, so rapidly does the mystery involved in a "pain in the back" unfold itself after a careful and painstaking investigation has been instituted. A patient presents himself and says: "Doctor, I have a most persistent pain in my back." A casual inquiry elicits the fact that the pain apparently is the only symptom, and that it has been rather troublesome, and for some time gradually getting worse, until recently; and now about as usual. A careful investigation will present an entirely different picture more often than some of us suspect. Instead of dealing with a malinger, or true lum-

bago, or Neurasthenic (whatever that vague indefinite condition is) we may have either one of several real serious surgical affections. For example, it may be a lesion of the sacro-illiac joint, a sub-diaphragmatic abscess, a postperitoneal malignant growth, an appendicitis, adhesions involving the biliary tracts or gall stones, or gall stone disease, or, and more often, a stone in or other surgical affections of the kidney or ureteral calculus.

I know it strikes one as rather far-fetched that either of the above lesions or diseases should be taken by any medical man for only a "pain in the back," and treated as a simple condition ingrafted upon a patient with a real smart imagination working over time. Of course, a careful investigation would lead one to the right conclusion, and eventually establish a more or less accurate diagnosis.

It does not become any of us to smile when such a mistake as before indicated is made. Who of us is entirely guiltless himself. I know I live in such a glass house and shall throw no stones. I have made such errors, and have later discovered them; have made such mistakes and had colleagues find them, much to my chagrin.

Careful, painstaking investigation, extending over a period of days, if necessary, of all patients with a pain in the back will do both the surgeon and the patient a great deal of good. For example, W. H., consulted me for pain in the back. Over a period of several years, he had had pain of more or less severity in the lumbar neurotic symptoms. He presented marked evidences of emaciation. He had been treated by various methods by several physicians, and had become to be looked upon as a more or less neurotic. Almost every medicine in the United States dispensatory had been given him, and every imaginable treatment pursued, including rubbing, porous plasters and various "leg-pullings." A careful examination led me to the conclusion that he had a renal stone. He gladly accepted the opportunity of an operation. Several

stones were removed from the pelvis of the kidney, and in due course of time was restored to his usual health and vigor.

Ureteral, or renal stone, and other surgical affections of the kidneys not rarely refer the pain more to the front, and then quite nicely resemble appendicitis, disease of the biliary tract, gall bladder diseases and several other more or less serious affections. I have seen more than one illustration of the tendency of the lumbar and anterior abdominal and pelvic regions to exchange courtesies by referring pains to each other. This is seen quite frequently in females and is more often the case with adhesions around the biliary tract than is supposed by many medical men.

Traumatic backaches often are very treacherous. A case presented itself to me some time ago which gave a clear-cut history of trauma and yet was a case of renal stone. He fell from a cart and immediately thereafter the pain began in the lumbar region. As usual for such cases, many sorts and kinds of treatment were pursued. Disgusted with it all, the patient turned to surgery for help, and I removed several stones from his kidney, much to his great satisfaction and witnessed his prompt and early restoration to health. These cases suggest what I intimated in the beginning of this article, and that which I desire to emphasize again, and that is that every case of pain in the back should be carefully studied. These cases should not be dismissed at once as simple conditions until we have satisfied ourselves that there is nothing serious in the background.

Dr. R. L. Gibbon, Charlotte: I heard Dr. Wm. Mayo give the history of a case very much like the one just mentioned by Dr. Parrott. He had known his patient for years, and the man had become a neurasthenic. Dr. Mayo had examined the man a number of times and tried in every way to find the cause of his trouble, but he grew steadily worse, and Dr. Mayo was unable to find any specific cause for the trouble. In the mean-

time, the X-ray came into use, and Dr. Mayo decided he would make an examination with X-ray, in another attempt to find what was wrong with his patient. The result was stone in the kidney was discovered. The stone was removed, and the man recovered entirely.

Dr. Parrott: I take it that most of us who have any reasonable amount of surgical operations, have had experience in this line of cases. I now recall a case that came to my attention since the one mentioned in my paper, which will be of especial interest to people who do railroad work. Of course, railroad wrecks sometimes do a great deal of damage, and sometimes very little. Of course, this patient, who was in a railroad wreck, instituted suit against the railroad company, claiming that the trouble from which the patient was suffering was the result of the railroad wreck. Upon an examination being made, it was found that the patient had a stone in the kidney, which was the whole cause of the trouble. The stone was removed to the relief of the patient, and also the relief of the railroad company.

ACUTE PANCREATITIS—REPORT OF A CASE.

R. L. Gibbon, M.D., Charlotte.

The somewhat remote anatomical situation of the pancreas, together with the usual vagueness of the symptoms associated with its diseases, has, until more recent years, rendered the recognition of pathological conditions in this organ a matter of great difficulty to the average practitioner, whether he be surgeon or medical man.

Out of the large mass of literature upon this subject, there are several facts connected with the etiology, pathology and symptomatology which stand out prominently, and are now generally accepted as trustworthy landmarks in the diagnosis and treatment of pancreatic disease. In addition to the well known and vital influence it exercises on digestive processes, this gland is supposed to have an internal secretion, which is of almost equal importance to the bodily metabolism. A recent and very interesting article upon internal secretion of the pancreas, and its relation to the complex subject of diabetes, can be found in the Journal of Am. Med. Ass'n. for March 4th, 1911.

In a paper upon pancreatitis, published in 1908, Dr. Wm. J. Mayo refers in an interesting manner to the subject of internal secretions, of which the following is a brief extract:

> "Digestion, absorption, and assimilation of the body are primary functions and were accomplished facts before there was a nervous system, and the necessary control was obtained from certain organic internal secretions. * * * * * The development of the cerebro-spinal nervous system, was a later evolution which has become dominant. Nature has, however, not allowed the central nervous system to wholly usurp these original methods of control, hence 'internal secretions still act as chemical messengers,' and to a large extent they control digestion and as-

similation. The struggle for supremacy of the advancing central nervous system over the internal secretions and the sympathetic ganglia, gives rise to irregular function and may lie back of much of the prevailing neurasthenia, digestive neurosis, visceral ptosis, etc."

Our present day knowledge of pancreatic pathology is largely the result of closer study and cleaner conception of diseases of the bile passages, and it is now universally admitted that inflammatory processes in the pancreas, certainly in the chronic type, are practically always the result of secondary infection from bile passages. The close association between the pancreatic duct and the common bile duct, both ducts entering the duodenum through a common terminal, makes infection here a matter of continuity of tissue. It is true that the second duct of the pancreas, that of Santorini, has a separate opening in the duodenum, but this outlet is becoming obsolete, and in a considerable percentage of cases is ineffective. A further anatomical condition bearing on the interdependence of affections of liver and pancreas, is found in the frequency with which (some say 62% of cases) the common bile duct during the latter part of its course, lies within the head of the pancreas. It is obvious that under such conditions any swelling of the head of the pancreas must obstruct the flow of bile, and hence add jaundice to the list of symptoms.

While, therefore, a consideration of anatomical relationship presents a plausible ground for the accepted view, innumerable experiments and investigations, together with a vast accumulation of clinical data, have also had the important bearing in settling this subject upon a substantial basis. In all of this, it is a matter of pride to recall that American investigators have done much to elucidate an otherwise obscure field.

When we come to the important question of diagnosis, however, more particularly in the acute cases, our position is not nearly so satisfactory. There is a mingling of symptoms, and a confusion of clinical findings that in the hands of the

most expert and experienced often leads into an endless maze of doubt and perturbation.

In reading Opie's book on diseases of the pancreas, one is struck not only with the frequency of dead-house diagnosis, but the almost uniformly fatal results in these acute cases of pancreatitis. Over and over again has the abdomen been opened under the impression that an acute obstruction of the bowels was present, or that a perforation existed, to find a swollen and boggy pancreas and foci of fat necrosis.

Stress has been laid upon the value, in forming a diagnosis, of fat in the stools,—steatorrhoea; of interference with nuclear digestion, as indicated by finding large amounts of undigested muscular fibres in the stools, and several laboratory tests, the best known of which is that of Cammidge. But of all of them, it can be said, that none are entirely satisfactory; the two first, became fat digestion, to a certain extent, can be carried on by some of the other digestive juices, notably the bile, and muscular fibre can be found in an undigested state simply from a diarrhœa, which has hurried the intestinal contents along too rapidly to be properly acted upon by the secretions. The laboratory tests are complex and tedious, and cannot be relied upon unless done by an expert, even then being rather in the nature of corroborative evidence.

Undoubtedly much of the difficulty in arriving at a correct diagnosis of pancreatic disease lies in the closeness of its relation with other and neighboring organs, giving rise to a commingling of symptoms, out of which the medical attendant either draws false conclusions, or possibly none at all. As has been aptly said, "the enlargement of the head of the pancreas, the most striking and gross manifestation of pancreatic disorders, causes pressure upon the blood vessels, bile channels, nerve trunks, thus producing a great variety of remote symptoms, the primary pancreatic origin of which very well may, and usually does, escape detection."

It can in fact be said of this, as of some other surgical

questions, that the greatest difficulty, as well as the greatest evidence of skill on the part of the physician, lies in a correct diagnosis, made in time to allow and more mechanical measures of treatment the best opportunity to effect a cure.

In the matter of prognosis, it has been stated by some that acute pancreatitis is not so fatal a disease as has been generally thought, and this more favorable view is no doubt due to a wider recognition, and a prompter resort to operative treatment. Nevertheless, in the fulminating, acute type of pancreatitis, we must recognize one of the most fatal of maladies. The sub-acute, and chronic forms offer a far more favorable field.

Surgical Treatment.

This may be summed up in a very few words. In the acute types, open the abdomen and drain the pancreas by an opening in its capsule, at one or more points. In the chronic form a more or less permanent drainage of the bile passages usually gives highly satisfactory results. Where prolonged drainage is decided upon, it is best to do an anastomosis between the duodenum, or the jejunum, by preference. Only under stress of circumstances is it wise to make a connection between the gall bladder and the colon, the much more active bacterial life in the large intestine increasing the liability to infection.

The case here reported illustrates some of the points in diagnosis and treatment which may prove of interest.

K. Z., white, married, aged 46 years. Well developed man, who had always enjoyed excellent health, with the exception of occasional mild attacks of indigestion, characterized by hyperacidity. Had an attack of typhoid in early life, and catarrhal jaundice some twenty years ago. Family history developed no points of interest.

For last six or seven months had suffered acute colicy pain in abdomen, usually at night, lasting a few hours, and coming on at intervals of ten days or two weeks. Had not lost flesh or been incapacitated for work, but on several occasions pain

had been so persistent as to require the administration of morphine by his physician. There had seemed a tendency, however, during the last few weeks for the attacks to grow worse, and patient began to lose some flesh. Attacks apparently bore little, if any, relation to the kind of food taken. Last attack began night of February 17th, 1911, much more violent than usual, and was only partially relieved by treatment. Belly wall was rigid, temperature 99 to 99½ Far., vomited at times a dark or yellowish fluid, no jaundice, bowels had moved. Pain was referred to the epigastric region, just below ensiform, and to the left side of abdomen. There was no tenderness over appendix or gall bladder, and only slight soreness over seat of pain.

On the 19th patient showed no improvement, with the exception that rigidity of abdomen was much less. On 20th he was taken to St. Peter's Hospital. The following report on blood and urine was made by Dr. Wm. Allan:

Blood:

Hæmoglobin=70%; red count=4,000,000; color index=87; white count=15,600.

Differential count=Polymorphonuclears—94.5%; small mononuclears—5%; large mononuclears—5%. No nucleated reds. No malaria. Size and color of individual red cells, very good.

Urine:

Acid; Sp. gr.=1040; color=brick dust from a heavy sediment of acid urates; negative for sugar and albumen; reaction for indican strongly positive; microscopical-amorphous urates; neither pus, blood, mucus, nor casts. A few squamous epithelium cells from the bladder.

The general condition of patient continued to assume a more and more serious aspect. He slept but little, eyes were sunken, and facial expression bad. The abdomen was soft, but there were tender spots, particularly on left side. Vomiting continued but was not marked.

On February 22nd it was decided to open the abdomen. The incision was through the right rectus muscle, with a view of being accessible to either gall bladder, stomach or pancreas.

This statement is alone sufficient to indicate the varying opinions held as to the nature of the disease. There were on entering the cavity abundant signs of peritonitis. Adhesions to the anterior abdominal wall were found on the left side, and to the body and tail of pancreas. Omentum and fat around bowels, especially in vicinity of pancreas, showed small whitish patches of what I took to be the much discussed fat necrosis of acute pancreatitis. That organ itself was greatly enlarged, the tail extending far over to the left, but contrary to the usual rule, the head of the pancreas was not noticeably swollen, which probably accounts for absence of jaundice as a symptom.

The gall bladder appeared normal, and no stones could be felt. The patient showing indications of collapse, the capsule of the pancreas was torn through at one point, and a drainage tube inserted, the abdomen being closed with through and through silk-worm gut, to save time. For the same reason, and because no gross pathological condition was found, the gall bladder was not drained.

For a number of hours after the operation but little hope of recovery for the patient was entertained. The pulse was weak, color bad, and respiration labored.

After a few days a thick, chocolate-colored pus was discharged from the drain,—which latter was kept open long after the patient had gotten up.

As to his present condition, he has not yet regained his full weight and strength, although capable of attending to his duties. At times he has slight pain in left side, which he attributes to gas, though more probably due to adhesions.

In reviewing the history of this case, over and above the obvious indication for an earlier resort to operative measures, it is plain that a middle incision would have reached more directly the seat of disease, and rendered the drainage better. I am also of the opinion that it would have been of decided advantage if the gall bladder could have been drained.

The course of the disease seemed to mark it as an acute at-

tack, grafted upon a chronic, or at least, a sub-acute affection of the pancreas,—a class of cases in which bile drainage is most effective.

Dr. Long presides as Chairman during the reading and discussion of Dr. Gibbon's paper.

Dr. Long: This is a very interesting and instructive paper, and it is now open for discussion. I hope you will enter into it freely and fully.

Dr. A. M. Willis, Richmond, Va.: I have listened to this paper with a great deal of interest. I think acute pancreatitis is one of the most serious things we have to deal with in the medical profession. The most important thing is the diagnosis. The earlier the operation, the more favorable the result. I believe in drainage of the gall bladder, if possible.

Dr. Merriweather: I don't know that I can offer anything new. I certainly enjoyed the paper very much. There is one point I would like to speak of. This case was operated on about a year ago in Philadelphia. The pain returned. I opened up and found the gall bladder drawn up about three inches, making acute symptoms. I just want to make this point,—that it is more important to drain through the gall bladder than through the duodenum, even if you have to drain a long time.

Dr. Henry Norris, Rutherfordton: Cyanosis, I should say, was the most important symptom. I don't know of anything else that causes such pain. I believe in immediate operation. I think that is the only chance.

Dr. Payne, Norfolk, Va.: I don't know that I can add anything to what has been said, that would be of interest. I think, however, the remarks that have been made, as well as the paper that was read, illustrate the importance of this disease, since these cases kill, and kill quickly. I think that in cases of suspected pancreatitis, one should not hesitate to make an early operation, and at the same time, it is probably the only way to make a certain diagnosis. If we would do any

real good in these cases, we must look in and see. If we don't know, we should look in and see. Of course, it may be that operations have been carried too far in some cases, but in suspected acute pancreatitis it can't be too strongly commended. I want to say that I think surgeons are indebted to pancreatitis; it gives us a way of escape in all suspected cases of gall stones. We can drain and find the gall stones.

Dr. J. H. Culpeper, Norfolk, Va.: I have nothing more of importance to add. I had the pleasure of seeing one case of pancreatitis. It was a young fellow about 21 years old. He had an attack about a year before, and I took it to be appendicitis. It pointed that way. One year afterward, he was again taken with acute pain, and I suspected that he had chronic appendicitis. He sent for me and I went to see him; he died a few days afterward. I was allowed to examine him after his death, and I found that he had chronic pancreatitis, which had developed into acute pancreatitis.

Dr. Payne: I think Dr. Long should speak to us on this subject.

Dr. Long: I thank you very much, but, as a matter of fact, I have never seen a case of acute pancreatitis in my life. I have seen a number of chronic cases.

Dr. R. L. Gibbon: I don't think I have anything further to say, except that I agree heartily with the gentleman who said that it is best to take prompt action, and look in. I am of the opinion that this case of mine recovered, because it was a light case of acute pancreatitis. If it had been a case like the one just mentioned by Dr. Culpeper, of course there would have been no chance.

SURGERY OF THE GALL BLADDER.

HENRY NORRIS, M.D., SURGEON TO THE HOSPITAL, RUTHERFORD.

This brief paper has been written, not with the expectation of presenting to you any new theories or technique, but in the hope that it may provoke a discussion upon what I consider three very important points in surgery of the gall bladder:

First, a plea for earlier diagnosis and more exploratory laparotomies when we are in doubt; *Second,* a protest against the use of an excessive amount of gauze, and *Third,* is ultra radical technique in dealing with pathological conditions in and about the gall bladder to the best interests of our patients?

In the last few years surgery of the upper abdomen has made tremendous strides, and especially is this true of operations upon the bile tracts, due, not only to the improved technique of the surgeon, but to the co-operation of the medical men, the very great majority of whom, now realize that there is a surgical cause for many cases of indigestion, which can be found in the gall bladder, and which does not yield to medical treatment, hence many patients are subjected to operation much earlier than was the custom, with brilliant results.

It is to be hoped in the future, that the medical profession may have a better way of dealing with pathological conditions than it has at the present time, but until that Utopian period of medicine in which we may do without surgery is reached, is it not our duty to make the best use of the methods which are at our command, and give our patients the benefits of the experience of our greatest teachers?

As a student, I remember that the great majority of gall bladder cases came to the surgeon late, many of them almost moribund, desperate risks and operations only to be undertaken by men of well established reputations, who were not fearful of high mortalities; yet year after year, the mortality

of operations upon the biliary tracts has been lessened by earlier diagnosis and improved technique.

It is unnecessary to run over all the symptoms of gall bladder disease, many of them are often wanting while others are given undue prominence; no one who has ever seen it, could well mistake the colic caused by stone in the cystic duct, and those cases in which there is more or less obstruction to the common duct, are equally plain, but many cases of cholecystitis with or without stones in the bladder, and adhesion cases are not so easily diagnosed. I wish that the group of symptoms of gall bladder disease given in some of the text books could be forgotten by practitioners as soon as they receive their degrees, as they are quite as harmful as descriptions of cancer which give hemorrhage, pain and cachexia, as the most prominent symptoms of that disease. Who of us today would hold a cancer case until cachexia developed before suggesting operation, yet gall bladder cases are nursed along until a distinctly palpable tumor is evident, jaundice marked, obstruction and auto-intoxication pronounced, and even then, I regret to say, many die for want of drainage. The very chronicity of many cases which come to operation is a plea for earlier recognition, especially the group in which indigestion is the most prominent symptom; given a patient who has been treated by half a dozen medical men for indigestion with but temporary relief, is it not time for the seventh man to let a surgeon open the abdomen?

I have unwillingly come to the conclusion that some medical men watch their cases too long because they are fearful of making a wrong diagnosis and subjecting their patients to unnecessary operation, but if careful histories are taken and thorough physical examinations are made, fewer mistakes will occur; a history of indigestion, pain, or even discomfort, with or without, other symptoms in the gall bladder region, which will not clear up under the strictest dietary and eliminative measures, should at once arouse one's suspicions, and

while I do not wish to be understood as advocating immediate operations upon all patients who have pain in the belly, I do plead for the earlier performance of necessary operations, and I believe it is entirely justifiable to advice exploratory laparotomies in obscure cases, and the more intelligent patients are, the more ready are they to submit, if symptoms are properly explained to them, furthermore, in such cases you will practically never have the mortification of seeing one of your patients operated and nothing pathologic found.

Men who have made a special study of bile tract infections are agreed that there is no such thing as innocent or harmless gallstones, and that the presence of stones in the gall bladder is a very distinct menace to life sooner or later, yet I have heard their harmlessness argued by men opposed to all but the most direct life-saving operative procedures, and statements made that stones can be passed in perfect safety. We know that they have been passed, and we have all of us seen cases in which stones have sloughed out of the gall bladder, in some instances into the small intestine, in others through the abdominal wall; truly nature can work wonders, but is it fair to expect so much of her and can nature's surgery be favorably compared as to mortality, period of time required, and the patient's suffering, with our own? Who would prefer to lie in bed and wait for nature to slough off our appendix, so that it could pass per rectum, or have an appendical abscess point in our popliteal space and rupture after careful poulticing by a medical attendant, as has been recorded, when we can have it safely removed through an inch and a half incision in ten minutes, and be about our work in ten days?

The gall bladder is not a rudimentary organ and its infections cannot be so successfully attended to by nature, as for instance, the appendix, and those cases which have been neglected have as an heritage, a mass of adhesions which continue to give distressing symptoms and undoubtedly malignancy is often grafted upon long standing chronic inflammatory conditions.

In operating in gall bladder diseases, we wish to remove the cause, cure the patient and not leave anything behind us which will cause trouble later or necessitate the performance of a second operation for hemorrhage, obstruction, a stone which was missed, or most common of all, to relieve adhesions. Therefore, we should have a good exposure, perfect hemostasis and should inflict as little trauma as possible—I am convinced that most of the postoperative adhesions are the end result of using an excessive amount of gauze, packing, and large numbers of gauze pads, to pack off viscera and to prevent soiling. The delicate peritoneal surfaces resent injury strongly, and every abraded spot means an adhesion, this very fact makes possible the easy performance of Talma's operation of omentopexy, and those of us who have had occasion to reopen abdomens which were operated by clean, skillful men, know that we find adhesions, a minimum is the best we can hope for, but when we have to reoperate a case from an excessive gauze user, the conditions found are trying to anyone.

That this statement about gauze is not exaggerated, may be demonstrated experimentally very readily, and is further borne out by the fact that one is constantly reading in the various journals of so and so's method of preparing, counting and keeping tab of sponges, so that one or more shall not be left in the abdominal cavity. When the number of pads run up into the dozens, tapes sewed to them and left hanging out of the wound, are wise precautions indeed. The gauze roll pack of suitable size, with all free edges carefully turned in, is very satisfactory, is readily introduced and is not disturbed by the manipulations of the operator, as are separate packs. The gall bladder having been exposed by whatever incision the operator chooses, should be brought out of the abdomen when possible, and a careful inspection and palpation made, before it is opened, and at this time, the operator should endeavor to determine whether or not he has a common duct case to deal with. When all is in readiness to open the gall bladder

an anchor suture may be introduced or a pair of Allis forceps clamped on while a large syringe or aspirator is used to withdraw the bile, an opening is then made, and if stones are found, they are removed by the finger, scoop or forceps. The utmost gentleness should characterize these manipulations and the same is true of sounding the ducts and curettage of the bladder walls. Having made a last careful palpation with one's finger, a dressed rubber tube drain is introduced, fastened by a couple of catgut sutures and the bladder wall at the point of entrance is then inverted by a circular Lembert suture of catgut. Drainage may be brought out by a stab wound or through the incision, at the pleasure of the operator.

I have briefly described a simple cholecystotomy which is the commonest operation performed upon the gall bladder, and I do not propose to weary you with descriptions of the various other procedures which can be carried out in this locality, but shall content myself with the statement that a simple technique properly and expeditiously carried out will obtain better results in the long run than more involved operations, which require a higher degree of skill for their successful performance, more time for their accomplishment, and in which there is distinctly more risk of shock, postoperative, hemorrhage, obstruction and peritonitis.

Gall bladder surgery in some cases is very easy, but surgery of the common ducts is always difficult, and the more radical we become, the greater are the difficulties which lie before us. I have followed the discussions for and against these procedures with great interest, and I believe that the pendulum will swing back as it has done about Gastroenterostomies, and that in the future fewer cholecystectomies will be performed, and that ultra radical work upon the ducts will be condemned. We should be prepared when we operate to do what we deem necessary for our patients; gall bladders which are manifestly diseased must be removed, likewise stones cannot be left, but a routine opening up of the ducts when stones cannot be pal-

pated is an unjustifiable risk. Drainage of the gall bladder must be maintained for varying periods, depending upon the individual case, so that no hard and fast rules can be laid down. Very often, I think, we do not drain cholecystotomies long enough. As to the post operative treatment of these cases, undoubtedly they do better if sat up, and especially is this true of the aged, respirations are not embarrassed, there is less risk of passive congestion of the lungs, pain is decreased and drainage is much more satisfactory.

The Fowler position can be made fairly comfortable in an ordinary bed, by placing a sand bag under the mattress just above the knees, and a number of firm pillows behind the patient, but I am not familiar with any appliance which can compare with the Way chair bed, for a comfortable sitting position. It is so devised that the angle can be changed in a moment and the double incline prevents slipping down.

There is no contraindication to the use of morphine, and water may be given in the course of a few hours after the effects of the anaesthetic has passed off. Liquid food in small amounts can be given at the end of twenty-four hours. It is surprising how well gall bladder cases do after operation, they usually express themselves in the course of twenty-four or forty-eight hours, as feeling better than they have felt for a long time, and as though they could eat anything they wished. If we could eliminate some of the neglected, late cases, there is no reason why operations upon the gall bladder should have any higher mortality than appendix cases.

By the Chairman: Dr. Norris' paper is now open for discussion

Dr. J. W. Long, Greensboro: I have seen some of these cases, and I have listened with a great deal of interest and pleasure to Dr. Norris' paper. We naturally do two things when we hear a paper read: In the first place, we listen to see

if we can hear something new; and, second, we watch for any, thing we can criticize.

In this paper, there is certainly nothing I can criticize; on the other hand, there is nothing especially new to a man who does a great deal of surgery, but I will say that the views Dr. Norris expresses are strictly up to date. I wish to emphasize very strongly one point, and that is: That the pendulum has swung back and the tendency is not to do cholecystectomy, but instead, cholecystostomy. I was foolish enough once to say that cholecystectomy was the ideal operation. I never do it now, if I can possibly do a cholecystostomy.

I did a cholecystostomy in a case of gangrene recently, in fact, have had several of the kind. True, a cholecystectomy is occasionally indicated. I have one such patient in the hospital now. In this case, the gall bladder was practically obliterated, and it was impossible to drain it. I turned out the little dried up bag, and the stones as well; but, generally speaking, the best operation, as I see it now, is cholecystostomy.

Drainage of the liver duct system is as important as removal of the gall stones. Another reason why drainage is so important, is because of the pancreas, which has already been so ably discussed by Dr. Gibbon. If we had no other reason for draining the gall bladder, the danger of pancreatitis developing should impress upon us the importance of thorough drainage.

Mayo, in an experience of 3,870 operations on the biliary tract, found seven per cent had pancreatitis, and in 469 cases of common duct stone pancreatitis was present in 24 per cent of the cases. I have had 100 cases, but I found the percentage quite equal to that.

Dr. J. H. Culpeper, Norfolk, Va.: There is one point to which I would like to call attention in these cases in operating, and that is, placing the cap. I think it would be well to let the patient relax before giving the anæsthetic. Of course, if the patient is not relaxed, he gets a great deal more trauma, and

I think it will do a great deal more harm than if he would wait until the anesthetist relaxes the patient.

Dr. Payne, Norfolk, Va.: I think the point that Dr. Culpeper has brought out a good one. It is in line with the point made by Dr. Norris that we should use less packing. I have seen a case in which too much packing had been done, in a careless manner, by an expert operator. I think bad results can be avoided by less packing.

Dr. Norris: I agree thoroughly with what Dr. Payne has said about the packing interfering with good results. I had an experience in that line in one of my first cases. The man was doing very well; then there was suppression of the urine for forty-eight hours. I could find no other explanation of it except the packing.

"SOME IMPORTANT POINTS IN THE DIAGNOSIS AND TREATMENT OF BONE DISEASE."

J. A. Williams, M.D., Greensboro.

In selecting this subject, I selected one which will interest both the physician and surgeon, and I am sorry to say one which we have all more or less neglected. In the first place it is a subject which by early diagnosis and treatment can be greatly benefitted with but little surgical interference, while on the other hand by allowing to continue on for a long period of time will finally end by having to resect or amputate and thereby necessitate, a stiffened joint or loss of a limb to the patient.

This subject also calls for a hearty co-operation of both the physician and surgeon in order to accomplish the best results in the end, and thereby give to the patient a limb which is most useful. In order that we may have a more intelligent idea of the disease of the bone let us examine a little into Pathology and Microscopical Anatomy of the bone.

For instance we have bone divided into long and short or spongy bone. Long bones are devided into the shaft and Epiphysis. The shaft contains the medulary canal, which cavity contains the chief blood supply of the bone, excepting that which it gets from the Periosteum. The Epiphysis gets its blood supply mostly from this source. Now the shaft has a better supply of blood than the Epiphysis, therefore the Epiphyseal end of the long bones and the spongy part of the short bones are the parts most likely to become infected by an embolus of tubercular diseases or any ordinary infection following long continued fevers like typhoid or any of the infectious diseases with long continued fevers due to a stagnant blood supply of the parts, also bruises or injuries to parts, lowering their vitality.

Therefore the most frequent parts infected is in the

Epiphyseal end of the bone. Now all joints are lined with a serous membrane, composed of endothelial cells lying on a fribous base and lying between this and the bone itself is a layer of cartilage.

Again any infection located in the Epiphysis of the bone will necessarily give rise to more or less irritation which is aggravated by a motion or movements of the joints in ordinary use.

Therefore we should bear in mind that any infection of the bone in Epiphyseal end, the first thing to do is to fix the joint, immovable, in order to prevent movements of the joints, and at the same time give extension to separate as far as possible the articular surfaces, thus preventing a complication of the joints becoming involved, which is always secondary, caused by gradual eating into; first the cartilage; then finally through the serous membrane into the joint.

Now I do not propose to go into the minutest detail of the diagnosis and treatment, because it will take up too much of your time. However I want to give you the most important points, which I am sure if you will follow, will give great aid in the diagnosis of these cases and greatly benefit you in carrying out the treatment. In order to facilitate I will take the knee joint as this is the most frequent joint involved.

1. *Tuberculosis*: The symptoms are slow, at first there is slight pain, slight stiffening of the muscles causing flexion, tenderness over the region of the joint causing pain, which causes night cries, due to the spasm of the muscles.

The flexion and spasm of the muscles is more noticeable in the morning decreasing with the increase of exercise. There may be a slight increase of temperature, especially in the evening. These symptoms may go on for some time and then subside and then we naturally think the patient well, only to find in a few weeks the same symptoms returning much more aggravated. There is more tenderness, more spasm and stiffness of the muscles, more pain, more flexion of the joints. Later

the joint becomes more swollen due to the exudate into the soft parts and surrounding tissue, the joints almost fixed due to the muscular spasm, and finally there is muscular atrophy, abscess, sinuses, floating patella due to evudate into the joint, rounding out of the general contour of the joint. Following this, external rotation, crepitus, subluxation, etc., showing a complete degeneration of the joint. This is the true picture of tuberculosis of any joint.

2. *Acute-Osteo-Myelitis*: On the other hand this disease comes on suddenly, usually ushered in by a chill, followed by a high fever, accompanied by intense pain over the region of the parts envolved, running an acute course, both local and constitutional. In the Osteo-Myelitis the shaft is the common seat of the disease, while in tubercular cases the Eppiphysis is the common seat of trouble. In Osteo-Myelitis the sequestra are long, flat, thin, hard, yellow flaked and worm eaten, with a great quantity of newly-formed granulation tissue, and new bony formation. In tubercular cases, the sequestra are small, fragile, ragged, cancellous tissue, lined with tubercular granulations.

3. *Arthritis-Deformans*: This occurs mostly in old people and rarely in the young. There is always a number of joints involved in this disease. There are no exacerbations of symptoms, no cares, or sinuses as you will find in tubercular cases. There is an absence of intense pain, high fevers, acute local and constitutional symptoms of osteo-myelitis.

4. *Charchots Disease*: This disease usually occurs in old people with a history always of syphilis, frequently following Tabes-Dorsalis. There is absence of intense pain and high temperature as in esteo-myelitis.

5. *Osteo-Sarcoma*: In this disease the growth is very rapid, with but little pain, rarely any temperature, no redness or glazing of the skin over the tumor and usually occuring in the shaft of the bone. There is rarely any interference with

the function of the limb until the latter stages of the disease, which is frequently complicated with spontaneous fracture.

6. *Acute Inflammatory Rheumatism*: In this disease there is usually a number of joints involved with intense pain and high fever, with early infusion into the joints causing a floating patella. It runs an acute course, clearing up of one joint as successive joints are involved.

Treatment—In tubercular troubles: Extension and fixation of the joint giving complete rest is of most essential importance. This can be best done with plaster casts or splints of various kinds with extension by weights, braces, etc. Never open a tubercular abscess if you can avoid it. If it gets very large and has to be opened do so with strict antiseptic precautions in order to prevent a mixed infection. Again if you have to curette it is not necessary to curette all the diseased bone, simply remove most of the broken down necrotic tissue and leave the healthy granulations, doing this under strict antiseptic precautions. In case you remove the pus from the cavity you might inject iodoform emulsion or still better Beck's Bismuth Paste, (331-3 bismuth, 662-3 yellow vasaline).

Osteo-Myelitis: In these cases the cavity of the bone should be opened immediately and be given free drainage, even a small opening will be sufficient in some cases but it is usually better to open wide, chiseling or curetting out the dead bone. It is wonderful how nature in these cases will take care of itself if we will only assist it a little. After opening and draining it will be a good idea to pack with iodoform gauze, changing from day to day, till the cavity is filled up with healthy granulations.

Summary: I will enumerate that first nearly all tubercular trouble begins in the epiphysis of the bone and the joint is always secondarily infected from this source and never primarily.

Second: Fixation and extension in these cases will often prevent extension into the joint if taken early, and thereby prevent joint complications.

Third: Never open a tubercular abscess except under the

strictest antiseptic precautions, thereby preventing mixed infection.

Fourth: In cases of osteo-myelitis it should be opened early, given free drainage, removing all dead bone, leaving the periosteum and healthy granulations.

Now if these points are well considered and adhered to even in doubtful cases where an injury has been received to a bone around a joint, early fixation and rest will often prevent a more serious complication requiring a more extensive operation, of resecting or amputation, and the loss of what might have become a useful limb.

By the Chairman: Dr. Williams' paper is now open for discussion.

Dr. Merriweather: I want to say a word about opening tubercular abscesses. I think it is a great mistake to open a tubercular abscess, as it nearly always becomes infected. It is the wrong thing to do.

Dr. Payne, Norfolk, Va.: In a great many cases a tubercular abscess has to be opened, because you have a mixed infection. There is nothing to do sometimes, but open it. I admit the danger of infection, and we have to take the strictest precaution to guard against this danger. There are times where it is impossible to avoid opening a tubercular abscess. Don't let us go too far on the other extreme and not open any tubercular abscesses under any circumstances, because in many cases we have a mixed infection when we first see the cases and then we should open them.

Dr. ————: I want to ask what experience the Doctor has had with Bismuth Paste?

Dr. Payne: We have not used Bismuth Paste at all in the way the Doctor speaks of. However, we are using it a great deal in all sorts of science with the best results. We have used it where injections would go into fistulas of the bowels. It is

customary to use Bismuth Paste in any fistula that will not heal, and always with good results.

Dr. Williams: My experience with Bismuth Paste has been to get good results, where there is not excessive discharge in the case. If there is excessive discharge, the result is not always satisfactory. A tubercular abscess should never be opened if there is any way to get around it. I did not intend to leave the impression that it should be opened if it was possible to avoid it.

PYLORIC STENOSIS.

A. Murat Willis, M.D., Surgeon to the Johnston-Willis Sanatorium and Memorial Hospital

and

J. Morrison Hutchison, M.D., Medical Consultant to the Johnston-Willis Sanatorium, Junior Medical Attendant to the Memorial Hospital, Richmond, Va.

Chronic progressive stricture of the pyloric opening of the stomach is a condition not infrequently met with. Congenital stenosis and acute obstruction, developing in later life at this point, are relatively rare. In the chronic cases, the obstruction is not complete except as a terminal condition, but, as a rule, inanition ends life before total occlusion has developed.

In our experience the most common causes of pyloric stenosis have been ulcer and malignant disease situated at or near the pylorus. Narrowing of the orifice may be due to the presence of one or more active ulcers; to scars after the healing of an ulcer; or to adhesions from inflammation or perforation. When malignancy is present, the obstruction has in most cases been produced by a preceding ulcer, but is increased by the presence of the new growth which encroaches on the lumen of the pyloric opening. Other intrinsic causes of rather rare occurrence but which may be mentioned, are: Cicatrices from caustic liquids swallowed, and spastic stenosis due to inflammation or irritation. Conditions outside the canal which could cause stenosis are: Adhesions following peritonitis; tumors; neoplasms-syphilitic or tubercular; or retroperitoneal lymph glands pressing on the duodenum.

In addition to the immediate obstruction, the anatomical picture includes the condition of the stomach itself, and this varies according to the cause of the stenosis. Progressive dilatation is the rule, often accompanied by hypertrophy of the

muscular wall and later by atrophy of the mucous coat and finally by atrophy of the muscular coat itself. The latter condition is earlier and more marked in those cases where active malignant disease is present in addition to obstruction.

The symptoms of pyloric stenosis together with those of the associated dilated stomach are quite characteristic; and, as the history of the causative factor can usually be elicited, the complete picture of the condition may be readily had. Pain is variable being rarely excruciating, but there is rather discomfort and a cause of distention after taking food, with a peristaltic unrest which, at times, gives rise to a pain of considerable severity. Owing to the fact that only a small amount of fluid passes beyond the stomach and that the dilated stomach absorbs little and often secretes a great deal, there are frequently present: Thirst, dryness of skin and mucous membranes, scantiness of urine and persistent constipation.

Nausea is common and vomiting the most prominent symptoms. At varying intervals, depending upon the degree of the stenosis and the sensitiveness of the stomach, an enormous quantity of liquid mixed with undigested food is brought up, and patients often state that articles of food taken a day or two previously are recognized. Emptying the stomach relieves gastric distress so that vomiting is often induced or the stomach tube resorted to.

Peristaltic waves and intermittent rigidity of the stomach wall are usually present, being both visible and palpable, and are pathognomonic of pyloric obstruction. They occur every few seconds or may be induced by tapping over the stomach region. They proceeded from cardia to pylorus and in some cases the contraction of the hypertrophied muscle at the pyloric end is so marked as to suggest a tumor in that region.

Upon distending the stomach with either air or water, the outline can be plainly determined. The cardiac and pyloric extremities are about in their normal positions as is the lesser curvature, unless there is an associated ptosis. The greater

curvature, however, may be greatly displaced and may be found anywhere from the umbilicus to the symphysis. While the stomach is distended, tumors should be sought for and their relation determined. The examination of the gastric contents in these cases is of distinct help, but care should be taken lest we be misled by clinical findings. Free HCl. is usually low and may be absent. The presence of lactic acid, HCl. being absent, is strongly suggestive of carcinoma, but by no means absolute proof. Microscopic findings we believe to be of small advantage. The most important point to be determined is whether or not stasis exists, and this can readily be done by examining the fasting organ, or by recognizing some article, such as raisins, given the night preceding the test meal.

Well marked obstruction, from whatever cause, has a profound effect upon the general nutrition, gradual starvation being the result. The cause is essentially a mechanical one and usually progressive and any attempt at medicinal treatment is valueless. Surgery on the other hand, has a great deal to offer, and in the majority of cases the results of proper operative procedures are brilliant. Finney's pyloroplasty gives remarkably good results in selected cases and should be done when possible. It is indicated in stricture following healing and in unhealed ulcers located within the zone of the operative field and coincidentally exercised. The most generally serviceable operation, however, is gastro-jejunostomy of the posterior or no loop variety (Mayo.) The question of malignancy is one that must always be borne in mind, as we know that early cancer can be detected with difficulty and no one can say at what stage an ulcer may undergo malignant degeneration. When it is suspected, a wide resection should be done when possible, but in advanced cases a palliative gastro-enterostomy only may be considered.

The following cases from the series of Drs. Johnston and Willis have been chosen to illustrate the points we have made above, and we believe that they include for the most part, the

common types of this interesting condition, setting forth not only the clinical picture but also what can be accomplished by surgical treatment.

CASE 1.—*Stenosis from scar of healed ulcer. Finney pyloroplasty.* L. O.; age, 50; female; single; colored. Referred by Dr. W. K. McCoy. Seen January 1, 1910. Complained of pain, vomiting and inability to retain food. Family history negative. Past history shows general health has been good. Present illness began seven years ago with pain in the epigastrium, coming on several hours after meals, relieved by taking food or alkalies, subject to remission during which there was comparative comfort. For past year nausea and vomiting has been frequent, and patient has noticed in vomitus food taken preceding day. She has lost greatly in strength and weight. Examination showed great emaciation, but general physicial condition good. The stomach on inflation was greatly enlarged and examination of contents showed stasis. Operation, January 8th, showed pylorus obstructed by small scar. Pyloroplasty was done with uneventful recovery. Patient seen May 7, 1911, has gained greatly in weight and says she has had no digestive disturbance since operation.

CASE 2.—*Stenosis following perforation of ulcer with adhesions to liver and gall-bladder. Posterior gastroenterostomy.* Mrs. J. H. A.; age, 40; female; married; white. Referred by Dr. W. K. McCoy. Seen September 18, 1909. This patient had suffered for thirteen years with stomach trouble, characterized by pain and burning in the epigastrium, nausea and vomiting, occasionally bringing up blood and passing tarry stools. For four years past nausea and vomiting had been more or less constant with frequent eructations and obstinate constipation. There had been great loss of weight, patient weighing 97 pounds. Examination showed stomach dilated and a mass the size of a goose egg at the pyloric end. Operation, September 21, 1909, revealed pylorus encased in dense adhesions and

firmly adherent to liver and gall-bladder. A posterior gastroenterostomy was done and the patient made a good recovery. When heard from in April, 1911, her appetitie was good, digestion fair, no constipation, and weighed 120 pounds.

CASE 3.—*Stenosis from unhealed ulcer of long standing. Posterior gastroenterostomy.* Mr. G. M. A.; Age, 41; male; single; white. Referred by Dr. R. H. Morrison. Seen November 17, 1909. Complained of pain in the abdomen. Past history had no bearing on present illness. Present illness began seven years ago with periodical attacks of severe pain just below short ribs on left side and in epigastrium. Food always had relieved pain and he had always felt better right after eating. Pain occurred only when stomach was empty, and was described as "awful" and doubled him up in a knot. Had had periods of entire freedom from symptoms for three months at a time. No nausea or vomiting, good deal of belching and sour stomach. Appetitie good, but patient was afraid to eat, although food always relieved the pain temporarily. Bowels constipated. No dysentery, no jaundice. Examination negative except as regards abdomen. General tenderness in epigastrium. At times visible peristalsis from *left to right* in epigastrium. No tenderness over cecum. No gall-bladder block. Gastric analysis after test breakfast showed 250 c. c. fluid expressed with no evidence of stasis. Free HCl. 37, total acidity 46; Diagnosis of gastric ulcer was made. On February 20, 1910, patient returned to hospital; had been vomiting repeatedly for some days and gastric lavage now showed distinct evidence of stasis. Stomach much dilated, greater curvature reaching three inches below the naval in median line with definite signs of pyloric stenosis. Patient greatly emaciated. Operation, March 8, 1910, showed large indurated ulcer at pylorus which completely occluded it. Posterior gastroenterostomy performed. Almost immediate change in patient's appearance. Convalescence uneventful. Patient was seen on May 30, 1911, had

gained 60 pounds since operation and is in apparently perfect health.

CASE 4.—*Stenosis from recent ulcer. Posterior gastroenterostomy.* W. G.; Age, 42; male; married; black. Referred by Dr. Morton Holladay. Seen April 27, 1911. Complained of dull burning pain in epigastrium, weakness and loss of weight. Family history negative, as was also the past history, except for typhoid twenty-five years ago. Pain in stomach had been present for one year, but worse since December. Appetite poor. No nausea or vomiting but frequent sour regurgitations. Pain was somewhat irregular as to its relation to food. At times food relieved, at other times it did not; but soda relieved pain regularly. There was obstinate constipation, and some months previously patient had noticed tarry stools. Patient had been weak for six months and had lost twenty-five pounds in weight. Examination negative, except for stomach, which, when inflated, appeared moderately enlarged. No masses were made out. Gastric analysis: Raisins present after fourteen hours. Free HCl. 50, total acidity 80. It was thought that this patient was suffering from a gastric ulcer located near the pylorus and causing a beginning stenosis. Operation confirmed the diagnosis, showing an indurated ulcer on the lesser curvature and encroaching on the pyloric orifice; pylorus fixed posteriorly by perigastric adhesions. A posterior gastroenterostomy was done and patient made a good recovery. When seen May 31st, he was entirely free from stomach symptoms.

CASE 5.—*Stenosis from recent malignant degeneration of old ulcer. Posterior gastroenterostomy.* W. H. T.; age, 60; male; married; white. Referred by Dr. E. G. Moore. Seen April 14, 1911. Complained of abdominal pain, nausea and loss of weight and strength. Family history unimportant. Had suffered for seventeen years from indigestion, characterized by pain coming on several hours after meals and relieved by food. There were periods of freedom from pain and general health

was good until two months ago, when he began to vomit, could retain no food, and had rapidly lost weight and strength. Had never vomited blood nor noticed bloody or tarry stools. Examination showed patient exceedingly emaciated. Physicial examination negative, except for stomach, which was plainly visible, and peristaltic waves were seen to pass from cardia to pylorus. The intermittent contractions were so marked that at times a large mass seemed to appear at the pyloric end. Upon inflation, the greater curvature was found to reach two fingers' breadth below the umbilicus and there was a small tumor palpable at the pylorus. Gastric analysis showed stasis. Free HCl. 2, total acidity 30. Operation, April 16th, under cocaine revealed a small hard mass about the size of a walnut at pylorus, causing obstruction. Owing to the patient's extremely depleted condition, it was not deemed advisable to do a radical operation at that time, so a posterior gastrœnterostomy was performed Patient left the hospital in ten days and was advised to return later for excision. Since reaching home has gained steadily in strength and weight, and it is doubtful if he can be persuaded to undergo another operation unless serious symptoms occur, when, of course, it will be too late.

Case 6.—*Stenosis from old ulcer with recent malignant degeneration. Resection and posterior gastroenterostomy.* Mrs. A.; age, 53; female; married; white. Referred by Dr. E. G. Moore. Seen April 27, 1911. Complained of discomfort in abdomen with frequent nausea and vomiting. Family and past history negative. Had had burning pain in epigastrium for twenty years, often relieved by taking food or soda. There had also been occasional sour regurgitations. Appetite and general health had been good. For the past year had had frequent vomiting spells and noticed an accumulation of food in stomach. For three weeks before coming to hospital there had been continual nausea and vomiting with great loss of strength and weight. Examination showed stomach dilated, the greater curvature reaching three fingers' breadth below the umbilicus. A

tumor the size of a hen's egg was palpable at the pylorus. Operation, May 3rd, revealed a smooth tumor on anterior wall of stomach, just to the left of the pylorus, which was almost completely occluded. There being no signs of extension, a wide resection was done with posterior enterostomy, and patient left the hospital in twelve days in fairly good condition, having taken a general diet for several days.

By the Chairman: Dr. Willis' paper is now open for discussion.

Dr. Addison G. Brenizer: I can add nothing to what Dr. Willis has said in his most excellent paper, but I would like to thank him for the precise way in which he has described his cases, and the clearness with which he has pointed out the treatment, and how readily the ulcers heal in cases of pyloric stenosis.

Dr. William Allen, Charlotte: I have listened with pleasure to Dr. Willis' excellent paper. I have recently had to wrestle with some of these cases. I have just seen, with Dr. Query, of this county, a white, male, age 24, who has been having "stomach trouble" for the last nine years. He never had pain or jaundice, but complains of gas and a feeling of heaviness after meals. He has gradually eliminated everything from his dietary except cereals and Graham bread. The case showed extreme emaciation visible peristalsis, easily palpable right kidney, but neither ptosis nor dilation of the stomach. There was no fasting contents; total acidity, 66 HCl. 1387.

The difficulty with me is in distinguishing cases of visceroptosis from obstruction due to old scars. In this case, I advised six weeks rest in bed, with forced feeding, and if no improvement resulted, an exploration of the abdomen.

THE MATTER OF ENEMATA IN SURGICAL CASES.

R. L. Payne, M.D., Norfolk, Va.

The modern surgeon is too apt to think only of the perfection of his operative technique, believing that perfect execution and perfect dressing leave little else to be done. This is no doubt true of the vast number of cases, but there still remains a respectable minority in which the purely medical management after operation will determine the question of success or failure.

I make no apology, then, in calling the attention of this body to the matter of rectal alimentation, because I believe that this valuable aid to the surgeon, as well as the physician, is imperfectly understood both in its limitations and its possibilities for good.

Too much is taken for granted and too little is absolutely known. It is commonly believed by the profession, largely as the result of clinical teaching in our medical colleges, that if the bowel will tolerate nutritive enemata we have a very good substitute for feeding by the mouth, and that the patient may maintain a "nutritive equilibrium" or possibly even gain in weight.

When we come to investigate this idea we find it is largely based on tradition and careful students of this subject tell us that, except in rare instances (the occasional cases in which the ileo-cæcal valve will permit the passage of fluids beyond) rectal feeding is at best a process of slow starvation.

Drs. Edsall and Miller in a very carefully conducted series of experiments determined in their most favorable cases the actual value of all food absorbed from the rectum did not exceed 300 calories a day, or less than one-sixth the amount necessary to the nutrition of a sick man. These results are largely confirmed by the studies of Boyd and Macpherson. These find-

ings of the laboratory appeal to us most forcibly if we consider certain fundamental facts in the physiology of digestion and absorption.

We find first that the process of digestion is practically completed in the small intestine and that so little digestion of food takes place in the large intestine as to be a negligible quantity in the nutrition of the body. We further find that absorption from the large intestine can only take place by endosmosis, while in the small intestine the food is taken up by endosmosis, filtration and diffusion, these processes being facilitated by the character of the epithelium, by the multiplication of the small blood vessels and by the great number of lymphatics. In the mesentery of the large intestine, the number of lymphatic glands or lymph stations is only 20 or 30, while in the mesentery of the small intestine the lymph glands number 150 to 200, thus further proving the limitation nature places upon the large intestine in the process of nutrition.

Following this we find that all the proteids contained in the food ingested are absorbed above the ileo-cæcal valve except about 14 per cent. This small per cent of proteids together with a varying proportion of sugar and fat pass through the ileo-cæcal valve and at once begin to be broken up by putrefactive bacteria into various end products to be in part absorbed and excreted by the kidneys (indol, phenol, etc.), or thrown off in the fæces (skatol, etc.).

Let us further recall the fact that the end products of digestion, unabsorbed in the small intestine, pass into the large bowel in a nearly fluid state, while the final residue is passed from the rectum as nearly solid fæces, showing conclusively the absorption of water from the large bowel. We are thus brought face to face with the fact that in the ordinary processes of nutrition there is no evidence to show that any part of the nourishment of the body is absorbed from the large intestine *except water*.

Another view of the phenomena of nutrition elicits the following facts, viz:

1st. The study of starvation has proven that proteids alone may sustain life, but the experiments of Edsall, Miller and others show that not more than 20 grams of proteid can possibly be absorbed from the lower bowel in twenty-four hours.

2nd. The study of starvation proves that non-proteids-gelatine, non-nitrogenous fats and sugars taken alone will not sustain life, but will greatly delay a fatal result by lessening the destruction of the albuminoids of the body. But the possible help from the absorption of these foods sinks into insignificance when we recall that several investigators have independently proven the absorption of fat from the lower bowel hardly reaches ten grams daily, while the studies of Reach prove the absorption of carbo-hydrates is exceedingly low.

3rd. Fasting animals require less water than when taking food. Indigestion of water, however, materially lessens the loss of body weight, lessens the excretion of urea and correspondingly lengthens the continuance of life. In the case of Dr. Tanner, who successfully completed a fast of forty days, water was taken freely after the sixteenth day with great improvement in his condition, and in a well authenticated case (Reference Handbook Medical Science, Article *Starvation*), a young man lived for sixty-one days taking nothing but water flavored with orange juice.

Is not the practical deduction, then, that at best feeding by enemata is a process of slow starvation and that as a life-sustaining measure they are useful almost entirely for the water they contain or for the nutritive material that may be soluble in water.

If this argument is correct, then two most important conclusions are reached, viz:

1st. That in cases where vomiting is a symptom possible of relief by operation, cancer or ulcer of stomach, ulcer of duo-

dunem, etc., it is a mistake to delay operation while an attempt is made to build up the patient by nutritive enemata.

2nd. The study of cases of starvation show that life is almost indefinitely prolonged if water is supplied freely. This is so not only because water makes up so large a percentage of the body weight, but especially because no elimination of the poisonous waste of the tissues can go on without a supply of water. It follows, then, a patient whose life would be sustained many days by the caloric resultant from the burning of his own tissues, will die quickly when deprived of water because of auto-intoxication from retention of his own waste products.

These facts lead to the following practical questions, viz:

1st. How shall nutritive enema be given?

2nd. What shall be administered in nutritive enemas?

3rd. How often shall nutritive enema be given?

First, then, no effort should be made to do the impossible in an attempt to pass the rectal tube through the sigmoid, for this is impossible and will result in irritation of the bowel and defeat of our purpose. The hips of the patient should always be elevated. If on the operating table, the patient should be in the Trendelenberg position and if in bed the foot of the bed should be elevated on a chair. A position on the left side is also best. The rectal tube, previously well oiled and filled with the fluid to be administered, is now inserted very gently and slowly into the rectum a distance of four or five inches and the enema allowed to flow very gradually into the rectum and thence by gravity into the large bowel*. This can certainly be done if we avoid the injection of air into the bowel be filling the tube

*In all of my laparotomies, before closing the abdominal wound, a quart of hot normal salt solution is introduced into the bowel, with the patient in the Trendelenberg position. This has not only the good effect of shinulation, filling up the depleted blood vessels and lessening subsequent thirst, but it straightens out kinks in the sigmoid and helps carry the sagging transverse colon into proper position.

with liquid before insertion and by preventing distention of the rectum at any time by keeping the receptacle containing the enema not higher than 12 or 18 inches above the patient's hips, thus maintaining low atmospheric pressure. Many a failure in rectal alimentation is due to lack of these simple precautions.

What shall we administer in nutritive enemata?

Let your main dependence be water. Most of the nutritive enemata recommended are largely based upon tradition and there is little reason to believe anything is absorbed except the water they contain, the residue being broken up by putrifactive bacteria, and it is a question well worth considering. *Are not albuminoids in the large bowel liable to be broken up into poisonous ptomaines that may become serious sources of danger to the patient?*

If albuminoids are given by the bowel, certainly they must be predigested, and the recent studies of Kendall (Journal A. M.A., Apl. 15, 1911), showing the effects of carbohydrates on the intestinal flora, make us believe that in all such anemata small quantities of sugar would go far to prevent putrefactive change. It is especially significant that water holding in solution certain salts is more readily absorbed than plain water. In this way solutions of grape sugar, dextrose or lactose may be used, and since we know that cane sugar and starches pass into the liver for final metabolism only as glucose or its congener, dextrose, we have in solutions of glucose something requiring no previous digestion to become available, and though not absorbable in large quantities, it will interfere in no sense with the absorption of water and is abundantly heat-giving and hence a life-saving power.

Let us also remember that a frequent source of failure in the administration of enemata is that the bowel becomes intolerant and that water, or water holding in solution low percentages of entirely soluble matter, is better tolerated than any other enema. The lesson is plain: when the need is urgent, normal salt solu-

tion or water holding in solution low percentages of glucose offers the greatest possibility of help.

How often shall nutritive enemata be given in surgical cases?

The answer depends on the exigency. If the patient has lost much blood, then the empty vessels will absorb very rapidly. A quart of normal salt solution will be quickly taken up and the enema be repeated in three or four hours. After two or three such enemas the vessels will absorb less freely, the quantity should be reduced to a pint and if there be the least intolerance the time interval increased to six or eight hours.

Under these circumstances, it is a mistake to attempt to add proteids or carbo-hydrates to the enema, as we cannot risk the irritation of the rectum by the splitting up of these foods into gases and ptomaines.*

If the patient has not lost blood, then absorption will be slower and if water is being given to combat thirst and stimulate elimination, then a pint of normal salt solution every six hours is about all the bowel will take care of and it will not do to risk irritating the bowel for fear it will retain nothing. It is also a pertinent question: Can we do harm by flooding the tissues with sodium chloride? I have seen salt solution administered by rectum until the patient (unconscious of what was being given) complained of a briny taste in the mouth, and it is a very wholesome fear that the kidneys may become irritated by the sodium chloride, especially if there be present either an active or latent nephritis.

If there is no immediate call for water in quantity and the purpose is simply to furnish caloric to tide the patient over a crisis, then resort may be had to the strictly so-called nutritive enemas.

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*One of the most popular traditions is that if the rectum is irritable, twenty drops of laundum should be added to the enema, which of course is foolish, as the laudanum would not be absorbed faster than the enema. A hypodermic of morphia thirty minutes before the enema would be rational.

Let us not forget that after all water is the principal ingredient of those which accomplishes good, and that low percentages of grape sugar in solution are more likely of absorption in helpful quantity than any of the animal broths or mixtures of milk and egg.

Dr. Addison G. Brenizer, Charlotte: Many observations made on human beings with an artificial anus and upon animals where fecal fistula had been produced, indicate that the large intestines showed no characteristic enzymes. It has also been shown that only the contents of the small intestines carry the enzyme; that these contents are fluid at the ilio-cecal valve, but solid at the anus. From these common observations it is evident that fluids are absorbed from the large intestines in considerable quantities. In dogs, from which 70 to 83 per cent. of the small intestines were removed in the experiments of Erlanger and Hewlett, digestion and absorption took place, and normal feces were formed. This was interpreted by these observers as an index that the digestion and absorption took place in the large intestines. I think the published work of Evans and Brenizer, in the Johns Hopkins Bulletin, 1907, and the work of Evans alone, disproved this idea and offered the rather important points that on removal of the large portions of the small intestines, the remaining small intestines increased in vascularity and actual functional activity, and that only the water was taken up by the large intestines.

In two cases of my knowledge, one with a fecal fistula, leading from the cecum and in a case of healed dysentery with an appendostomy, it was found that fats and proteids were absorbed to about the extent of 8 per cent., and carbohydrates to about 15 per cent.

Harley succeeded in taking out the whole of the large intestines, and showed that the amounts of fats and proteids absorbed were reduced only to about 95 per cent, and that the

stools were very fluid; carbohydrates were reduced 20 per cent. Nuttall and Thierfelder showed that the bacteria of the large intestines were not necessary to the normal life, but that they did affect proteids more in a way of preparing them for elimination in the urine, as indoxyl and skatoxyl sulphuric acid.

The bacteria have their chief importance in their effect upon cellulose, forming alcohol. Alcohol is absorbed very freely from the large intestines. The use of saline purges in increasing the diffusion and osmosis towards the lumun of the intestines, and thus purging make the contents more fluid, and through producing peristalsis by the irritating distention of the intestines, has taught us that in order that water pass into the blood stream and not the intestines, it should be given into an equal concentration, preferably equal to that of the blood and not in too large a bulk so as to prevent distention.

Dr. Payne's paper and the above remarks in confirmation, should show that in nutrient enemata, only salt solution, sugar and alcohol are important as foods, and that the fats and proteids are practically worthless.

Dr. Payne: I don't think it is necessary for me to say anything more. I want to thank these gentlemen for their remarks. I think it is well to call attention to the experiments made, that were mentioned by Dr. Brenizer, with the result that after a few minutes there was an increase in the blood supply.

Dr. Burrus: I want to thank Dr. Brenizer for this paper. I believe all effective surgery is surgery done in the simplest way. I can not see any objection in doing the gastro-enterostomy in the usual way. The instrument in common use is easily removed. The handling of the omentum and transverse colon offers little trouble, and the ordinary packs, suffice in preventing the soiling of the peritoneal cavity.

My objection to this instrument of Dr. Brenizer's is this: That you have gotten more instrument into your field, and the pressure on the stomach walls would seem to interfere with the nerve supply, and this, one should always bear in mind. I am

very glad indeed to see Dr. Brenizer presenting this new instrument, but I see no advantage over the ordinary stomach clamp, and I see nothing to be gained by using this instrument, that is superior to this clamp.

Dr. Brenizer: With the ordinary stomach clamp, a pressure upon the stomach walls, sufficient to hold the part to be anastomosed in position, to hold back the contents of the stomach and to prevent bleeding, is absolutely necessary. This instrument does very effectively, without the slightest injury to the walls or to the nerves, and beyond this, offers to me an excellent means of gaining a grip upon the stomach holding it in position, and at the same time, removes the omentum and transverse colon from the field. Any one who has performed this operation has certainly realized the great difficulty of passing the stomach walls through a rent in the transverse mesocolon, and clamping it with the ordinary intestinal clamp. This difficulty is done away with by the use of my instrument.

In the portion of the stomach clamped off, there is always a small amount of contents left over; the contents are first pressed out of way by my instrument. All this, with the corresponding modifications in the technic of the operation, assuring a greater security in union make this an altogether satisfactory instrument in my hands. I know of but one model of it in this country, and it is in my hands. The instrument is open to anybody, but it is not on the market.

NITROUS-OXIDE-OXYGEN ANAESTHESIA.

J. H. Culpeper, M.D., Norfolk, Va.

At the recent meeting of the Tri-State Medical Society, my associate, Dr. Southgate Leigh, of Norfolk, Va., presented a paper on Nitrous-Oxide-Oxygen Anesthesia, in which he stated that I would make a more detailed report later on. It is with this report that I wish to consume a few minutes of your valuable time.

In order to give you a clear idea of this work, it will be necessary for me to discuss the subject under the following heads, viz: First, A Brief History of My Association With the Use of Nitrous-Oxide Gas; Second, A Description of the Apparatus Employed; Third, The Method of Administration; and Fourth, The Results I have Obtained.

During the year of 1905 I received my first lessons in the use of Nitrous-Oxide-Gas as an anesthetizing agent. At this time, the Bennett (Gas-Ether) apparatus was being extensively used by us in starting our Ether anesthesias. This method was indeed a more pleasant and safer method than the Chloroform-Ether sequence, as the mortality from Nitrous-Oxide alone was nothing in comparison to that of chloroform. In producing an Ether Narcosis by the Gas-Ether sequence, I was instructed to first Cyanose, to a fair degree, my patient with the gas, and then gradually turn on the Ether and air. Personally, I never admired this method, and think it far inferior to the drop-Ether method, if an Ether Narcosis is desired.

The main objections I had to this sequence were the Cyanosing of the patient, and the inability to control the exact amount of Ether that the patient would receive when the Ether valve was turned on.

I would like to comment at this time upon my first and principal objection, Cyanosis.

A slight Cyanosis at the beginning of a Gas-anesthetic is not bad, but should never be countenanced for any length of time, as it is produced by a replacement in the blood of Nitrous-Oxide for Oxygen, which could not be continued for any considerable period without producing a deleterious effect upon the patient. This Cyanosis, however, clears up immediately on giving the patient a little air, which I afterwards learned to employ before turning on the Ether.

I soon learned from this fact alone, that I could produce a little longer Gas anesthesia with less Cyanosis, and finally inveigled my surgeon into doing small operations such as curettings, abscess and the like with this form of Narcosis. This was really our beginning of Gas-Oxygen, crude as it was.

I continued with this crude method for some time, and last year I employed Oxygen instead of air, diligently measuring my amount of Oxygen in the mixtures at all stages. My results were much better as the anesthesia was a great deal smoother and better relaxation was acquired.

At this time, they had commenced to use Gas-Oxygen exclusively at the Johns Hopkins, and seeing Gatch's report, I had a great desire to see his work, as he had really accomplished a great deal more than myself. It is a strange coincidence that both Gatch and myself held the same views in regard to the method of rebreathing the gases, but he working on the principle of Dr. Yandell Henderson's theory of shock, succeeded in applying this method to a greater advantage than myself. I later had the pleasure of visiting the Johns Hopkins Hospital and there met Dr. Willis D. Gatch, through whose kindness and generosity of ideas I was able to develop a piece of apparatus known as the Mixer, the principle of which is the same as in his latest outfit; the difference being mainly in size and location of plates on interior of chamber, which I will describe in detail.

The apparatus which I am now using consists of a triangular stand that can be rolled about, and which supports a triangular

basket. This basket holds two cylinders of Nitrous-Oxide and one cylinder of Oxygen. On one side of this basket is hung the mixer which consists of a copper cylinder six inches tall by four inches in diameter. In the top of this cylinder and nearest the side of the basket are three nipple openings; to these are attached the rubber tubes leading to the Gas containers. On the circumference of the top of cylinders at a point facing the anesthetist is an opening into which is screwed an ordinary drop sight feed oil cup for holding Ether. The dropping arrangement is controlled by a thumb screw on top of cup, and can be regulated to any number of drops per minute—this to be used more as an adjunct to the Gas than for the purpose of Etherizing the patient.

In the bottom of the Mixer are placed two openings opposite to each other; one being a pet-cock for the purpose of allowing any free liquid, either water of condensation or Ether that might be evaporated, to escape. The other opening (one inch in diameter) is the connection for the rubber bag which holds, approximately, eight gallons of Gas. This pipe projects upward above bottom of cylinder on inside about one inch, to prevent any fluid getting into the bag.

The outlet leading to the mouth piece is situated on upper part of wall of cylinder, facing the patient and is connected with inhaler by a wire wrapped rubber hose.

Inside of the cylinder are two plates which run transversely two-thirds the distance across the Mixer, the first being two inches below the top and the base soldered to wall of cylinder directly under the sight-feed of oil cup. The second plate is soldered to the opposite wall of cylinder two inches below the upper plate. These plates are used for the purpose of allowing the Ether to become thoroughly vaporized and mixed with the Gas before entering the bag and being inhaled by the patient.

Most any kind of mouthpiece and valve box can be used. My first being the old Bennett inhaler minus the part which contained the Ether. Since then I have had a good many and

the most satisfactory for general use is the one which The Wilms Instrument Co. manufacture for the Gatch apparatus. This, however, is too large for face and neck work, also for children. In these cases I have several mouth pieces which I made out of zinc, of different sizes. At any rate any valve box with two valves, one for to and fro breathing, and the other for allowing direct breathing from Mixer to outside air, is all that is required.

It is absolutely necessary that the mouth piece fit the patient's face air tight. This can be easily accomplished by a rubber cuff, or on the smaller inhalers by the rubber cushion that is provided with the numerous Gas-Ether inhalers on the market.

The apparatus can be very easily sterilized by boiling the metallic parts and soaking the rubber hose, cuff and bag in Bichloride, later rinsing with water.

Method of Administration.

The preparation of the patient for this anesthesia should be just as thorough as for any other, especially in regard to an empty stomach, as they are very liable to vomit if they have had anything to eat.

Owing to the fact that the patient rebreathes a great number of times, the mouth should be cleansed as thoroughly as possible.

I have always found it a good practice to give Morphia gr. 1-6th and Atropia gr. 1-100, in the majority of cases one-half hour before starting the anesthetic; the dose of the drugs usually being governed by the age and condition of the individual.

To begin the anesthetic: See that the mouthpiece and cuff are adjusted to the patient's face comfortably, and at the same time be sure to have it snug enough to prevent any admission of air. Then adjust the valve in valve box for to and fro breathing, after first coupling the hose from Mixer and bag to mouth piece. Fill the bag with Nitrous-Oxide gently and allow patient to breath Gas to and fro. In about thirty seconds

the color of the individual will commence to change from normal to pale and gradually become slightly Cyanotic, the respiration becoming slower and deeper, the pulse at the same time keeping pace with respirations should be slower and fuller. At this time allow a puff of Oxygen to escape into bag; the color changes to a florid hue, the respirations smooth and not labored and pulse slightly accelerated.

The patient at this time should be in a state of surgical anesthesia. The patient is allowed to rebreathe for about two minutes, more or less depending upon the case and individual, at the end of which time, the valve is adjusted for direct breathing and the bag is emptied, then it is refilled and the same procedure is repeated about every two minutes during the anesthesia.

In cases that requires a great deal of relaxation it is well, or at least much better to add ten or twenty drops of Ether to the mixture, than to Cyanose the patient with Nitrous-Oxide in the hope of gaining the desired end. This amount of Ether can do no harm, and I think I could quote a few cases in which the addition of the Ether, not only further relaxed the patient, but also acted as a stimulant. Ether given in this form is practically non-irritating and I have yet to hear a patient or their relatives who visit them afterward, say that they could smell any Ether about the patient, a condition which, I am glad to say, is eliminated.

In some articles on the use of Nitrous-Oxygen great stress is laid on the fact that one must warm the Gases before the patient inhales them. This is accomplished by rebreathing to a certain extent, and I would say, answers in a way all purposes. At present, I am having a Mixer made for the purpose of warming the Gases, but have not as yet tried it. I do not think that it will make any difference except in the cost of the anesthetic, which is on the average by the above method about 50 to 75 cents for the usual case.

Tetor, of Cleveland, reports that the warmed Gases are less

liable to cause irritation, and are more readily taken up by the blood producing a quicker and smoother anesthesia.

The clinical results of this method of anesthesia are based on three hundred cases, a large percentage being Laparotomies. I have so far noted no bad results, in fact the worst cases seemed to do better with it. I have kept a record of the pulse and blood pressure of these cases and find that the pulse is usually slower and blood pressure slightly increased. This is due to the fact that rebreathing has been extensively employed, proving conclusively within certain limits rebreathing is stimulating and not depressing as it first appeared to be.

None of thes cases were permitted to breathe any air during the entire anesthesia as only a slight admixture of air makes the anesthesia worthless.

The danger signals of this anesthesia are, Cyanosis, marked slowing of pulse and vomiting. If Cyanosis accompanies the anesthesia and can not be controlled by the admission of Oxygen, the Gas should be discontinued and Ether used by the drop method.

The marked slowing of the pulse will not occur until Cyanosis has long existed and my advice to men who try to use this anesthesia is to be governed more by the color than by any other symptom.

If vomiting occurs, it is needless mentioning that the mask should be removed and face and mouth cleared of all vomited material. This disagreeable feature I have never had to happen except in those cases that had not been properly prepared. So much for the danger signals.

As to relaxation, I have never yet seen a case that with the addition of a few drops of Ether in the mixture I could not relax to a sufficient degree to permit the surgeon to do any sort of work that might be necessary.

The reaction of a patient anesthetized for one hour is usually complete inside of five minutes, and in ten minutes they are perfectly rational and free from any effect of the anesthetic.

Vomiting, I should say, has been noted in a few cases, but nothing like the amount that would have occured had these same patients taken Ether.

There has also been no irritations of the kidneys or lungs following its use.

The indications for this anesthesia are, I think, if I will be permitted to make a bold statement, for every case requiring an anesthetic where there is no work to be done requiring any length of time about the mouth or nose.

Age plays no part—the youngsters doing as well as the adult—and the aged still better.

My youngest case was a Mastoid, one hour duration on a child four years old, and my oldest a Cholecystotomy, forty minutes, aged eighty. Both cases reacted completely inside of three minutes.

At present I can only recall five deaths of patients from Nitrous-Oxide. Crille of Cleveland reported two, and remarks that these would not have occured had the anesthetist had sufficient experience with the Gas. He also says that he does not think this would happen again.

As far as I know, Gatch has had three deaths which I will take the liberty to report:

The first case of severe Aortic disease practically dropped dead before breathing the anesthesia, as I think he had taken only one inhalation. The second case was an Exopthalmic Goitre who had been refused operation under any anesthesia, and the third a child who had multiple ankilosed joints, died soon after the first joint was manipulated—autopsy showing a large Thymus gland. These cases, I think, would have died under any anesthesia, had any one else been so unfortunate as to accept them.

In conclusion, I wish to thank Dr. Gatch for his many kind suggestions in regard to the administration of this anasthetic, and my associate, Dr. Southgate Leigh, for the clinical material and many valuable criticisms of this work.

By the Chairman: Dr. Culpeper's paper is now open for discussion.

Dr. Abernethy: My whole time recently has been devoted to this class of work, and I will admit that I don't know anything about it, and I feel a delicacy in trying to talk on the subject. The first great advantage I see in this, is the time saver as an aneasthesia. He says you can aneasthetize a patient in two minutes. It usually takes fifteen or twenty minutes. Then when you take twenty minutes, you have trouble with the patient struggling and coughing. It is not easy to put a patient to sleep without any struggle.

As to mortality, we all know that the use of Nitrous-Oxide-Gas stands first; Ether stands next in mortality. I don't think chloroform ought ever to be used as an anaesthetic.

Surgeons have not realized until the last few years that giving anæsthetics requires experience and skill. If it had not been for the recent action taken by surgeons, the mortality would have been a great deal larger. Of course we know that it is going to take an expert to use this apparatus which Dr. Culpeper uses with such success. I don't think anyone should think an expert anaesthetizer is just as important as an expert surgeon. We know that Ether does not nauseate the patient as it used to.

I believe the use of Nitrous-Oxide Oxygen is going to be a great help to the profession. The trouble in the past has been that we had too much apparatus to handle.

Dr. Payne, Norfolk, Va.: I have always felt that in any operation I undertook, the danger was in the anaesthetic. Almost any surgeon can have clean hands and take all the necessary precautions, but the anaesthetic kills sometimes, and kills quickly. However, I don't believe all the doctor has said about Ether. You may arrest the vomiting some by giving less Ether, but if we give less Ether, we will have a greater shock to the patient.

I think the principal thing to recommend in Dr. Culpeper's

paper, is the quickness of the recovery from the effects. In some operations, we know that the patients can sit up in proper position and have the wound bandaged.

I think another great thing is that it does away with the great danger of pneumonia, caused by the use of Ether. I want to thank Dr. Culpeper for his paper.

Dr. C. E. Reitzel: I saw an operation, and the specialist who was in charge of it, told me that he had gone to Johns Hopkins, and had used Nitrous-Oxide-Oxygen, with the intention of adopting it, but he said after using it there for awhile, I am sure he said he saw one death that was the result of its use, and another which he thought came from it.

One doctor here said that Ether was next best. I would say that it stood first. I will take Ether first, in preference to any other method. I would say that it does not usually take me more than ten minutes to get a patient ready for an operation. I can't recall but two or three patients who ever struggled any, and not very much vomiting. Now, I don't claim to do any better than Dr. Abernethy, but that has been my experience.

I don't think this method superior to the drop method of Ether. All I want is a little piece of gauze. The only advantage in Dr. Culpeper's method is the time saved, and I doubt that. I believe I can get my patient ready as soon as the surgeon can get ready for him. I agree with Dr. Abernethy in his statement that we have been accustomed to getting the patient too thoroughly under the influence of the anaesthetic. I am very glad to see this branch of the profession advance, but I am entirely content to use the drop method of Ether.

RAYNAUD'S DISEASE, SMYPTOMS, PATHOLOGY AND TREATMENT, WITH REPORT OF CASE.

J. Ernest Stokes, M.D., Salisbury.

History: In 1862 Maurice Raynaud, in a thesis, first recorded his observations and described the condition of local asphyxia, and symmetrical gangrene of the extremities. A case of such a nature having come under his observation for the first time during the year previous. It was Laveran, however, who first applied the name of the discoverer to this peculiar form of gangrene. Raynaud first brought out the three distinctive clinical phenomina, which characterize the disease and which occur in the progression of a typical attack. Namely: Local Syncope, Local Asphyxia, Local or Symmetrical Gangrene.

Local Syncope: The initial stage of the disease signifies that state in which the affected area takes on a pale or white color.

Local Asphyxia: The second stage, may or may not be preceded by the first, is indicated by a blue appearance of the affected area.

Local or Symmetrical Gangrene: The final culmination of the progress of the disease, and one of its most distinctive as well as peculiar features. It is a rare condition, however, and has attracted the attention of many investigators since Raynaud first described its appearance.

Report of Case: Patient, female; aged, 24 years; white; single; occupation, nurse in training.

Family History: Father died at age of 46 years, of Bright's disease; mother living in good health; no history of tuberculosis or cancer in family.

Past History: The patient suffered all the diseases incident to childhood, from which no unpleasant sequdæ noted. Patient had a severe attack of diphtheria, during tenth year of age,

from which she made a quick and complete recovery. Patient has had no serious illness during her adolescence. She has been strong and active unto the present trouble. Menstrual history normal.

Present Complaint: On admission to the hospital February, 13th, 1911, the patient complained of pain in right arm, extending from elbow to tip of ring finger of the corresponding hand. The pain is of a severe sharp nature, and tip of finger shows a bright red, blotched appearance. The patient says that for the last three weeks she has been feeling weak, nervous and unable to sleep. That her work has been an effort for her to do and that she has had no appetite. Three days ago the patient first noticed the pain in arm, commencing at elbow and extending directly to tip of ring finger of that hand. At first the pain was only annoying at times, not constant, nor severe. The finger when the pain would come on would become pale and cold. A day or two ago the patient, in doing her work, had to have her hands off and on, in a carbolic solution, 1-40, for several hours. After that the pain in arm became much more severe and the pallor and coldness of finger became more marked. The finger felt at times ice-cold. In about three days after the first onset of pain, this pain became intense, so much so, that the patient felt ill and unable to be about. At the same time the first phalanx of the right ring finger gradually began to turn a bluish red, which rapidly extended to the second phalanx. There was at first a curious, tickling, crawling sensation in the finger, which became as the color darkened, a dead numbness: stiff and sensative to pressure. The pain in arm and hand become intense, almost unbearable. This phase continued about twenty-four hours. Then identical cycle of symptoms started up in the left extremity, and the corresponding finger of that hand showed the same symptoms and clinical picture that the finger of the right had shown. The index finger of the right hand then next became involved with the same symptoms-complex, followed by the symmetrical finger

of the left hand. This process kept up with remarkable symmetry, each finger of the right hand being followed by corresponding finger of the left hand in regular sequence, until all the fingers of both hands had become involved. The fingers had by this time become a blueish black, shrivelled at the tips, stiff and exceedingly painful to pressure. The pain in arms and hands were excruciating. The hands were swollen, œdematous and of a deep congested color. Over the pads of several of the fingers small blebs formed, which when pricked, showed a bloody serous fluid. At no time was either of the thumbs involved. This process in the upper extremities occupied about two weeks. Then suddenly the patient noticed a pain in the right leg, extending to the toe, corresponding to the finger of the right hand which had been the first to become affected. From now on, with remarkable order and regularity, each toe of each foot passed through the identical symptom-complex, that the symmetrical finger had. The feet became swollen, œdematous, painful and tense. No blebs formed on the lower extremities. The discolorization passed off in about four weeks. Distinct sensation of a tickling, crawling nature presisted for several months. In fact even at this time over six months from onset, patient notices at times an unpleasant sensation over all the involved areas. This sensation is often brought on, or is intensified when presented, by an exposure of the parts to cold, or by cold, damp weather.

Treatment: The patient on admission was immediately put to bed. The affected extremity was put to rest and elevated. Once daily the affected area was soaked in hot normal salt solution, then carefully enveloped in cotton batting. The temperature on admission was nearly 102, which in about twenty-four hours or so after patient was put to bed, dropped to normal. The patient's bowels were kept well opened and only liquid nourishment allowed. The pain at times was so severe that large doses of morphia were allowed every four to six hours. Nitroglycerine, one drop of a one per cent. solution,

was administered every four hours. The patient apparantly improved under the administration of the nitroglycerine, or the disease simply ran its course, one is unable to say. One single case is too slight an evidence to base an opinion on. Outside of the indefinite tickling sensation at the tip of the fingers at times the patient has had no return of the trouble. The general health of the patient is now excellent and she is able to meet all the requirements of her arduous profession.

Diagnosis: Raynaud's disease of both upper and lower extremities. Manifesting first two phases: Local Syncope and Local Asphyxia.

Result: Cure.

Frequency: Raynaud's disease occurs more often in the female than in males and before the 30th year of age. Though cases occuring in the very extremes of life have been recorded, as after the 70th year, and in very young infants.

Raynaud's disease may occur purely as an independent form of disease or in association with some central nervous affections. (Strauss). Again it may be associated with a great number of morbid conditions. Heredity is present in about eight per cent of cases. Emotional influences, malaria, and the breaking off of the morphine and chloral habits are all important factors in many instances. (Riggs).

Exposure to cold is generally conceded as the most active and frequent factor in bringing about the initial stages of the disease.

Symptoms: As previously noted, the three distinctive symptoms of the disease are local syncope, local asphyxia, and local or symmetrical gangrene. It is peculiar to the disease that symmetrical parts, though not invariably, may be involved to a noticeable degree. Thus the onset may occur in one finger of one hand, then the corresponding finger of the other hand, then back to another finger of the other hand and so on and on until all the fingers have become involved symmetrically. In the reported case such took place. And then after all the

fingers had become involved the toes followed in precisely the same order as the fingers had become affected. H. Strauss asserts the gangrene is rarely symmetrical. The occurrence of the first two symptoms is not infrequent, while the extension of the process to the stage of symmetrical gangrene is much less frequent. All these may occur in combination, or the process may stop at either of the first two.

Local Syncope: The first of these stages may occur alone. In this stage the patient first notices that after exposure to cold, or some other undue or unusual influence the part affected becomes pale, extremely white and the seat of abnormal sensations. The "tickling or crawling" sensation, and the sensation of deadness are more or less accompanied by pain, sensitiveness to pressure and stiffness of movements. The sensibility to touch or pressure and the needle like stings are dulled, and the cadaver like bloodless fingers are ice-cold. (Dehio).

This same author speaks of this condition as an angiospastic anaemia or regional ischæmia, and considers it the same as the local syncope mentioned by Raynaud. The above symptoms may usher in an attack, or there may have been previous, severe pain, which is intensified as the attack develops. The attacks may be intermittent. The parts involved do not bleed when pricked. This fact Raynaud suggests, is due to a defect of different impulses, and not to muscular weakness. (Riggs). Local syncope may be unilateral or bilateral. The upper extremities are more frequently involved than the lower. The syncope may attack one finger or all, or it may attack the different phalanges in an irregular manner. There is no regularity in the frequency of the seizures. They may occur once or many times daily, or there may be a prolonged intermission between the attacks extending over a year or more. Local syncope may disappear without leaving any trace or causing any pain. (Riggs).

Local Asphyxia: The second stage usually follows the local syncope but it may occur independently, as has been noted

there may be intermission and exacerbations in the beginning of an attack, after which the affected parts later assume a cyanotic, or bluish red, even sometimes almost a black color. This is the stage of local asphyxia. The fingers and toes are most often involved, either symmetrically or unilaterally. The pain may become unbearable, or again it may be entirely absent, unless affected part is handled. Riggs notes that "local cyanosis differs from local syncope in not being confined chiefly to the limbs; but in attacking as well the ears, face, lips, chin, tongue and trunk. The manner in which the parts are involved is most irregular, there being no definite order of sequence. The lower extremities are less frequently involved than the upper."

During an attack the part alone immediately affected may become greatly swollen or even œdematous, or the swelling may extend as from a finger to the whole hand. The area may become intensely red, congested and hot. There is some loss of motion, or stiffness with pain, which is not severe as a rule. According to Osler, these attacks may continue at intervals for years, cold, mental and gastric disturbances frequently being exciting causes. At the same time the general health of the patient may be good. "The condition is always worse during the winter and may be present only when the external temperature is low."

Symmetrical Gangrene or local gangrene as it is sometimes called, is the third and final stage of the three distinctive phases of Raynaud's disease. Gangrene usually follows local asphyxia, though its presence following directly local syncope has been noted. While all three of the classical symptoms may occur in order; symmetrical gangrene occurs alone in about two per cent. of the cases.

The gangrene is of the dry form and though occurring often symmetrically it may appear unilaterally. Pain is more or less present; and at times becomes almost unbearable in intensity. There may be a high rise of temperature with rapid pulse,

headache and a general feeling of malaise. The hands, feet and ears are the most frequent seat of attack. As a rule the local asphyxia persists in the affected area, followed by pain steadily increasing. Finally becoming excruciating. There is a marked darkening of the extremity; or in the severe form the tissue of even the trunk may be affected in patches. Dehio notes that in patches the epidermis is raised in larger or smaller vessels or blebs, which at times become filled with a bloody serous liquid. Finally the skin of the affected area, together with the underlying soft parts become dry and shrinks; line of demarcation shows itself, and a finger or a toe may slough off. This "mumification" or loss of substance is mostly limited to the skin, so that after the affected parts have fallen off the fingers or toes may remain unshortened, the ends covered with cicatrices or scars. But again deeper parts may be so involved that spontaneous amputation of the extremity may take place, then single phalanges or whole fingers fall off at a distinct line of demarcation. According to Osler the resulting loss of substance is much less than the appearance of the affected area would indicate, and a condition which looks as if the patient would loose all the fingers or half a foot may result perhaps on only a slight loss of the phalanges.

Pathology: Local syncope was thought by Raynaud to be due to a contraction of the blood vessels. As far as the smaller arteries are involved this theory is generally conceded, but there is a divergance of opinion as to whether the smaller veins are actively involved. As to local asphyxia there is a wide difference of opinion. One view advanced is that it is due to an isolated spasm of the smallest venules, which impedes the outflow of the veneous blood from the capilaries, thus producing stasis. (Weiss).

Another view is that the asphyxia is depending upon dilation of the capillaries and smaller veins, probably with persistence of some degree of spasms of the smaller arteries. The seat of this disturbance according to Burdach is situated in the vaso-

motor center of the medulla oblongata, which regulates blood pressure through the innervation of the muscle fibers of the blood vessels, and this center like any other, may be irritated reflexly or directly, and each case varying with the intensity of the irritation, there will then be an increased tonus of the vasomotor constrictors and a spasm of the vessels will result.

Sachs in his excellent contribution on Raynaud's disease, erythromelalgia, etc., says that the majority of writers have recognized that Raynaud's disease might be associated with central nervous disease, but is more often dependent upon disorder of the blood vessels. He quotes H. Strauss as proposing to substitute for the term Raynaud's disease the designation angiospatic gangrene. According to this author he continues, the gangrene is rarely symmetrical, and is the result of malnutrition due to ischæmia or spastic cyanosis. Raynaud's disease far from being a trophoneourosis, is, according to Strauss, a pure angio neurosis occurring either in an independent form of disease or in association with some nervous affection. In this view Sachs concurs with Strauss.

Treatment: Rest in bed with affected extremity well elevated and closely wrapped in flannel. In some cases there will be frequent recurrent attacks irrespective of treatment.

Massage cautiously applied, both general and local, all bruising of the affected parts should be avoided.

Riggs strongly advocates a fifty per cent. alcoholic solution of menthol applied to the members involved, which then should be wrapped in cotton and covered with oil silk. Calvanism is recommended. Osler suggests immersing the affected limb in salt water and placing one electrode over the spine and the other in the water.

The pain should be controlled by opium.

Nitrite of Amyl, and nitroglycerine, especially the latter, have been strongly advocated.

The health of the patient should be looked after by means of tonics and wholesome diet. All avoidance of cold is of

great importance, the patients surroundings being kept at an uniform temperature, while the patients mental state should be put at ease and all anxiety removed.

LITERATURE.

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H. STRAUSS: Quoted by Sachs.

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DEHIO: *Symmetrical Gangrene of the Extermities*—Deutsche Ztsche F Nervenbr-Leipzig 1893, IV, pg. 1-13.

"Transpation."

BELOWSKY: *Contribution to the Pathology of Raynaud's Disease, or Symmetrical Gangrene*—Neurolog Centralbl-Leipzig 1905, XXIV, pg. 836.

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Meeting of the House of Delegates of the North Carolina Medical Association.

TUESDAY, P. M., JUNE 20, 1911.

The first session of the House of Delegates of the North Carolina Medical Association, convened Tuesday afternoon, June 20, 1911, at the Mecklenburg County Court House, Charlotte.

The meeting was called to order by the President, Dr. C. M. Van Poole, of Salisbury.

By the PRESIDENT: The first thing in the order of business is the roll call by Counties. The delegates from each County will please respond as the name of their County is called.

DR. A. A. KENT, Lenoir: I make the motion that any County that is not represented by a delegate, be represented by any member of the profession who is here from that County.

The motion carries.

DR. ATMORE: I am from Pamlico County, and though I am not the delegate, I want to represent my county.

By the PRESIDENT: By the motion just made and carried, you can do so.

Roll call of counties by the Secretary.

DR. A. A. KENT, Lenoir: We desire to have our councilors have a meeting among ourselves, before we make our report before the House of Delegates. We would like to be excused, so that we can discuss matters among ourselves, before we are prepared to make report.

By the PRESIDENT: Then that brings us to the report of Committees. Report of last meeting on President's Address. I remember the motion, as passed at Wrightsville last year, was that this report should come through the General Committee to

the general body. Shall we have it read here, and also in the House?

Dr. Taylor: I move we have report of the Committee read here and in the House.

Dr. A. A. Kent, Lenoir: I got in at 12 o'clock today and I met one of the Committee, and the other members of the Committee are not here yet. We have had no meeting since last January, and it will be necessary for the Committee to get together here again before we can make a report. The report, as formulated, is in the hands of the Secretary of the Committee, and he is not here. I am Chairman of the Committee, and we will have to have a meeting to ourselves before we can make report to the body.

By the President: I think we can let it go over. We should get the representatives from the different districts together. I would like for the members from each district to get together, and go on the Nominating Committee.

Dr. Kent: I move that a recess of fifteen minutes be taken, in order that the representatives from the different districts may get together and find out who the members of the districts are.

Dr. Taylor: It seems to me that we should know who the members or representatives from the different districts are. They should have some credentials, it seems to me.

By the President: The Secretary has the credentials from the different members. We usually take a man in good faith. The Secretary will call the names of the districts and the members of the Nominating Committee:

First District—Dr. W. H. Ward, Plymouth.
Second District—Dr. K. P. B. Bonner, Morehead City.
Third District—Dr. J. A. Dozier, Southport.
Fourth District—Dr. E. T. Dickinson, Wilson.
Fifth District—Dr. J. P. Monroe, Sanford.
Sixth District—Dr. Albert Anderson, Raleigh.
Seventh District—Dr. T. F. Misenheimer, Morven.

Eighth District—Dr. J. M. Turner, North Wilkesboro.
Ninth District—Dr. T. E. Anderson, Statesville.
Tenth District—Dr. J. H. Way, Waynesville.

By the PRESIDENT: Is there any other business? The Secretary can not make this report this afternoon, we have excused the councilors, and there seems to be nothing that can be done. Can't the Councilors possibly make their report this afternoon?

DR. KENT: I would like very much to yield to your desire in this matter, but we feel that we would like to make a report that would be more intelligent and creditable than if we were jerked up on the spur of the moment, and we think that we can make a more satisfactory report if we can have time to confer with each other. It will be a great help.

By the PRESIDENT: Well, you need help, so we will do the best we can for you.

As no other business is ready to come before the House of Delegates, the meeting adjourns, to meet again at 9 A. M., Wednesday, June 21, 1911.

DR. A. A. KENT: There are two classes of reports—one by the Chairman of the Board of Councilors, and the individual reports of the Councilors. We are prepared to make our report in that way, that is, the report of Chairman, and individual reports.

By the PRESIDENT: The By-laws simply call for report of the Board of Councilors.

DR. A. A. KENT: The By-laws prescribe for a general report, and individual reports. By report, as Chairman of the Board of Councilors, is as follows:

The newly elected Council met together on the last day of the annual meeting, and organized for the year by electing a Chairman and Secretary. The duties of the Council were gone over, and a plan of work for the year, including a visit on the part of the Councilor to each county in his district, was decided upon. It was further decided that each Councilor should keep an itemized expense account for each of his visits, and that the Society should be asked to pay these expense accounts, as provided for in the

By-laws. As this expense was likely to aggregate $750.00 to $1,000.00, the Chairman took the matter up with the Secretary of our State Society, as to whether the funds in the treasury of the Society were adequate to meet such an expenditure, by the Councilors, and the Secretary advised that it chould not be met unless there was a very great improvement in the receipts from the County Societies, which was not at all probable. The Chairman advised the other Councilors by letter, in consequence of which the councilors refrained from making these visits, but endeavored to reach and encourage interest in the County Societies by correspondence, and otherwise.

The Councilors in the first, second, fifth, seventh, eighth and tenth districts made visits to the counties in their districts, which it is hoped will result in much good in those counties.

While the interest and enthusiasm of the members in the County Medical Socities is far from what is to be desired, especially in the counties where there are no large towns, the general condition of the profession of the State, financially and ethically, is remarkably good. There are but few counties now in the State, where our practice laws are not rigidly enforced.

While the standard of requirement maintained by our State Board of Medical Examiners is reasonably high, and is securing for the State, in the main, high grade class of young doctors, yet, on account of our having no preliminary educational qualifications, and one or two other minor defects in our State law, our State has lost its high position and rank among the states, greatly to the discredit of our North Carolina doctors. This must be remedied by additional medical legislation. The profession is to be congratulated upon the great amount of beneficial legislation obtained at the hand of the recent legislature. This is due largely to the active interest taken in it by the doctors throughout the state. The medical education qualification was only lost by a few votes on the senate side of the General Assembly.

No Legislature can resist the combined influence of the medical profession of the state, in a matter that is good for both people and profession. Every doctor should make it his business to impress upon his member elect and his Senator, that he wants this legislation, and that it is not best for any young man to allow him to enter upon the study of medicine without reasonable preliminary education.

The Council has not been called upon to act as a Board of Censors in any case during the past year. No questions of an ethical nature have been referred to the Council by the House of Delegates, or by the

General Meeting. There have been no questions of appeal from an individual councilor before the Council.

District Society meetings were held in the seventh, eighth, fifth, fourth, sixth and second districts during the year. The Councilors in those districts are to be commended for their active energy in getting up and holding these district meetings. They do much good in the districts where held.

By the PRESIDENT: You have heard this report. Is it accepted?

By a MEMBER: I move that this report be accepted.

By a MEMBER: I second this motion.

The motion carries and the report is accepted.

By the PRESIDENT: We will now have the individual report of the Councilors.

By the SECRETARY:

First District—DR. J. L. SPRUILL. (No response).

DR. K. P. BONNER, Morehead City: I would like to say for the benefit of those present, that Dr. Spruill sent in his report.

DR. STEVENS: Dr. Spruill's report of the First District is as follows:

To the President and Board of Councilors:

GENTLEMEN: It gives me pleasure to report that all the Counties of the first district are organized except Hyde, which I have not been able to visit. In the ten Counties of my district, there are but fifty-five physicians, and as they are so widely scattered it has become necessary in some instances, to organize two or more counties into one Society. At present we have four working Societies.

I find the physicians willing and anxious to organize, and we expect to have a live, working district Society in a short time.

Second District—By DR. K. P. B. BONNER, Morehead City: *Mr. President*: I have a very short report to make, in regard to my work. I have tried to stimulate interest in every way possible, in my district, since I was elected Councilor. I visited eight County Societies during the year, one of which we had to re-organize. Out of the ten Counties in my district, only seven have come into the Society. In Jones County I do not think it advisable to organize a Society, as it is a rural district, and there are only five or six physicians who belong to the Society in the adjoining County. Two or three belong to the Craven County, and two to the Lenoir County Society. For that reason I did not think it

wise to organize a Society in Jones County. I visited Beaufort County, which we re-organized, and they have a very good Society there. I next visited Pitt, then Lenoir, Craven, Pamlico and Carteret Counties. Carteret is my home County.

I think Dr. Stanton will agree with me that we have had an increase in membership in our District, and I am in hopes we will get it in better shape later.

The 3rd of May we organized a District Medical Society, and, although we had a small but fair percentage of the profession, we had a very pleasant and profitable meeting. It meets again in October, in Washington.

Third District—No report.

Fourth District—The Secretary states that he has a letter from Dr. J. J. Phillips, Councilor of the Fourth District, in which letter he hands in his resignation, and states that it is a job which is of too much importance to be held by a man who does not have the time to do the work justice.

Fifth District—No report.

Sixth District—Dr. R. L. Felts, Durham: I have the honor to report that upon the whole the work of the Sixth District, for the past year, has been quite satisfactory. With the exception of a few Counties, regular monthly, and in some Counties, semi-monthly meetings are held, with an attendance of 50 to 60 per cent.

I have been unable to visit all the Counties in the district, but we managed to have a very successful district meeting in Durham on April 21, 1911. All counties, with the exception of two, were represented, and with a good attendance. Through the assistance of Dr. C. H. Peete, of Warrenton, Warren county, has been recently re-organized. We have great difficulty in holding together two or three of our Counties, on account of the small number of physicians in them, and their wide separation.

We hope, during the present year, to be able to unite these weaker counties to some of the stronger adjoining counties.

So far as I know, there are no unreconciled questions of ethics at present among the members of the various County Medical Societies. The Counties I refer to, in which I have been unable to organize Societies, particularly, are Caswell and Orange. I have never been able to get any reply to my letters to Caswell County. Caswell County has been organized in the past. Orange County has possibly only three or four doctors, and we have never been able to organize a Society there.

It seems to me that the solution of the whole problem would prob-

ably be to organize Caswell and Durham into one Society, and Person and Orange Counties into one Society. Both Person and Durham have very active Societies. Person Society meets once a month and the Durham County Society meets twice a month.

I have not made an official visit to Wake County. They are usually wide awake, and there is no necessity for visiting them.

We had a splendid district meeting on April 1st. There were about fifty in attendance, and practically all the papers were read, and we had a very enjoyable meeting.

Seventh District—Dr. A. J. Crowell, Charlotte: I have no written report to make, but will say that I have visited seven of the nine Counties in this district. Eight of the nine have good County Medical Societies, well organized, well attended, and doing a good work in the way of reading papers, and active work. Every County Society that I have visited had very creditable papers, and some of them are giving clinics in these meetings.

In no County Society have I heard of any trouble or dissatisfaction with each other, or with the organization. I took particular pains to look into that part of the question, as I think it very important, and a part of the work of the Councilors. We all know that the Society is not so energetic and enthusiastic in its work, as it was a few years ago, just after we re-organized, and I think, as councilors, it is our duty, if we possibly can, to find out what the trouble is and assist in remedying the trouble. It is our duty, and for that reason, I took special pains to investigate and try to find out if there was any reason for the waning interest in the Society work, and I have been unable to find any specific reason, which has caused this loss of interest in the Society. In fact, every County, except one, in this district, has a County Medical Society, and every physician in the County is a member of the County Medical Society, with the exception of one. Anson County has let their County Society go under, not on account of any friction or trouble, but they had a meeting or two, and could not get up enough interest to keep the Society together. They have promised to get together and re-organize. I have promised to visit them, and I think next year we will be able to report every County Society in this district organized and doing good work.

We had a District Society meeting on the 6th of December, and I want to say right here that I believe it was one of the best Society meetings I ever attended. The County, State, or even National Association meetings are not far ahead of it, so far as work goes. The men came and we stayed here day and night, reading and discussing papers,

and I think we had 24 or 25 papers on the program, and all but two papers on the program were read, and listened to with a great deal of interest. We had no politics,—nothing but reading and discussing papers, and it was a very pleasant and profitable meeting. This year, in December, we will have another meeting in Gastonia. Dr. Munroe was elected president. Every county was well represented at this district meeting.

Eighth District—Dr. R. O. Dees, of Greensboro: We have eight of the best counties in North Carolina, except Mecklenburg, in our district. I desire to say that our Society is in good condition. Throughout the year, I visited the counties of Randolph, Forsyth and Wilkes, and all of these counties are in especially good condition. I would suggest that Wilkes and Randolph counties have some recognition in the appointments made by the State Society. During the year, we had a district meeting, held at Winston-Salem, which was well attended, and after the reading of the papers, and discussion of the same we had a social session, which was very enjoyable.

A great number of the Societies have had public meetings in connection with their regular meetings. These were styled "Health Meetings," to which the general public were invited.

I don't believe there is anything further to report.

Ninth District—Dr. A. A. Kent, Lenoir: I did not make visits to all the counties, but I wrote letters to a number of the Presidents and other members of the County Societies, and in that way endeavored to stimulate interest in the meetings, and to get all the information I could as to the status of the Societies. Nine counties responded by answering and filling out the series of blank question, which I sent to them. One county did not respond, and in that county, there is no Society. In Watauga county there is no Society.

There are one hundred and seventy-five (175) licensed physicians in the district,—two special, and two not licensed. There are 114 members of County Medical Societies. Fifteen of these physicians attended the meeting of the State Medical Association last year.

One County Society reports that it is active, and doing good work, three counties report their Societies at a standstill, and five report them waning. Seven counties report that interest in the State Society is at a standstill in their county, and two waning.

Four counties hold quarterly meetings, and three hold bi-monthly meetings of the County Medical Societies. One County Society meets three times a year, and one twice a year.

All report that the Society meetings are not well attended, but

that it is hard to get country doctors to attend meetings. It is true that my district is made up of country towns. Two counties report that their Societies take an active interest in shaping medical legislation and seven report no interest in this matter.

There have been no ethical questions to be settled, and I think I may say that there are no ethical question which create any friction in my district.

Tenth District—Dr. M. L. Stevens, Asheville: In considering this report, it must be taken into consideration that all of the counties in my district are mountain counties. Most of them are sparsely settled, and the manner of travel is very poor,—mostly by horse back over bad roads. I have received a written report from all of the Societies in my district, as I communicated with the Secretaries of the different County Societies. I have made visits where I thought they would be profitable. We have six active Societies, with membership ranging from six members, holding four meetings a year, to Societies with a membership of sixty-three (63) holding bi-monthly meetings.

In a few of the counties, Societies were organized a few months ago, but, owing to the geographical conditions, it has not been possible to keep these Societies together. In some localities, it would necessitate a physician being absent from his practice three days to attend a meeting of his County Medical Society, and when he got there, he would only find a very few present at the meeting. Under such conditions, we cannot expect Societies to hold together, or much interest to be taken in the meeting in these counties. I regard it as wholly impracticable to try to keep up the organization, and I think the only alternative is to advise the registered physicians of those counties to unite their membership with larger Societies, in the adjacent counties, where conditions for travel are better.

On the whole, conditions in the Tenth District are very satisfactory—as satisfactory as could be expected under the conditions mentioned.

Fifth District—Dr. W. P. Holt, Duke: I have not visited all the Fifth District, but I have had reports from all of them. There is an organized Society in each county, and a District Society, which meets quarterly, and meets at different counties. There are some of the counties that have not many physicians, but I think, on the whole it is doing very well, considering the number of physicians we have. There are a number of Societies that are doing exceedingly fine work in my district.

The District Society is doing fine work, is well attended, and I think the district is in good shape.

By the PRESIDENT: I will say that not all of the Councilors are here, but I have been in communication with all of the Councilors and I am sorry to say that some of the districts are in bad shape, and doing almost nothing.

I am pleased with the reports that have been made, but I wish there was some way to stimulate interest in the other districts.

DR. HOLT, Duke: I would like to say that there are two new Societies in my district. Polk county has just organized a County Society.

By the SECRETARY: I beg to make my report, as Secretary of the Association, as follows:

HIGH POINT, June 20, 1911.

Mr. President and Gentlemen of the House of Delegates:

Another year has rolled by and we come again in annual session to renew acquaintances, review the work of the past year and council together for the coming year.

The progress of the medical profession in North Carolina the past year has been for good to this commonwealth.

The increased appropriation by the last legislature to the State Board of Health, alone is evidence that the medical men of North Carolina are being recognized as a factor for good and that the influence of this Society is being felt in shaping matters looking to the conservation of the health of our people, and thereby increasing the wealth of the State.

Your Secretary has had a busy, but pleasant year. The longer I work for the Society the more I see there is to do to bring the Society up to that high plane it should occupy. But there are too many good men yet outside the organization, but just how they are to be reached is a question I cannot answer.

The new board of councilors elected last year have done good work in many counties but they will bear me out in the statement that there are too many men outside the Society.

The membership has fluctuated since 1904 (the first meeting after the re-organization) from 990 to 1250. At last years session I had reports from sixty-nine counties representing a membership of 976. This year I have reports from 60 counties representing a membership of 852. I sometimes think, "After keeping tab on the membership for eight years," that we now just about represent the essence of the pro-

fession, then I recall men who have been a power in the profession for good, and are good yet, who for reasons satisfactory to themselves do not affiliate with us, and it cannot be said that all the good physicians in the State are in the Society, but I believe that it could truthfully be said they should be.

With a fixed expense and a loss of over 100 members we will not be able to print the expensive transactions we have been printing for the past several years. In order to meet the bills last year I was forced to let the printing of the Transactions drag along till I had collected this years dues from several counties. So you see I am running behind in that I am calling on this year's revenue to pay list year's expense.

In order to keep out of debt and let the annual dues remain at two dollars I am going to ask you to recommend that I do not print the expensive volumes, with expensive binding, as in the past, but that a cheaper edition be gotten out. The work for the past eight years has been a credit to our Society, and I regret the necessity of asking that you advise differently, but as financier, it has always been my policy to keep on the safe side, and, seeing the treasury running low, I believe I owe it to this Society to give this information.

After the expenses of this meeting are met, we will not have over $650.00 in the treasury. To print the number of Transactions necessary for the present membership will cost $1,275.00 if they are printed as in the past, but the Transactions are simply for reference, and it is not so essential to have the expensive work we have been having the past eight years.

The Society is in good condition physically, but the trouble in the past is, we have just a little extravagant, and did not make calculations for our membership to fall off.

Now that we are confronted with a reality, I am sure that we will meet the emergency and continue on a stable and safe financial basis.

Respectfully submitted,

D. A. STANTON, *Secretary.*

DR. A. J. CROWELL, Charlotte: I move that the report of the Secretary be adopted, and that the recommendation made by him be adopted.

By the PRESIDENT: Is there any discussion? I think we ought to decide upon the kind of binding we are to have for our Transactions.

DR. CROWELL: I think this Society can very well leave that

matter to our worthy Secretary, who is one of the best business men in the Society. The transactions are simply for reference, and I don't think it is necessary to have such expensive binding as we have had heretofore. We can leave that to the Secretary.

The motion is carried.

By the PRESIDENT: We will call for report of Special Committee, appointed last year by Dr. Wood.

DR. HOLMES: You remember that three of us were appointed as a Special Committee to make report at this meeting as to certain special proceedings in our By-laws. The Committee, composed of Dr. A. A. Kent, of Lenoir, Dr. G. L. Sikes, of Salemburg, and myself, met in Raleigh on January 1st, and went fully into this matter, and formulated such changes as we deemed essential, and I am here today to make report of that Committee.

The Committee has been making changes in our By-laws. Article 13 of the By-laws reads as follows:.

"AMENDMENTS: The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been registered in open meeting, at a previous annual session, and that it shall have been sent officially to each component County Society at least two months before the session at which final action is to be taken."

This Artcile demands that the matter be brought before the House of Delegates, and be left to the House of Delegats to decide whether this whole report shall be made before the general body. The report is a very long one.

DR. A. J. CROWELL: I made the motion that it was to come before the House of Delegates in regular order, as everything should come before that body, and then report to the Society as a whole, just as they do other work that comes from the House of Delegates to the other body as a whole.

By the PRESIDENT: The Chair remembers very distinctly that the motion before the general body was that this Committee report to the general body, and Dr. Crowell made the motion that the report should come through the House of

Delegates to the general body, and that motion carried and was adopted.

Dr. A. A. Kent: Inasmuch as this report is purely submitted as required by the constitution, in order that it can be acted upon in a regular way, it must be presented at a regular meeting and laid on the table for twelve months, during which time it must be presented to the County Medical Societies, and then finally be brought up a year hence for action before the State Medical Board. Inasmuch as it must have that length of time to be passed upon, I think it had just as well be submitted now as amendments, without being read, and lying on the table a year, during which time it will go to the County Medical Societies, where each member will have an opportunity of hearing the whole thing read, and then it will be read by sections and by articles, when it will finally be acted upon, at which time the House of Delegates will have an opportunity of knowing just what is in it. I think it is best to submit it now, just as amendments, without the onerous task upon our Secretary of reading twenty pages of typewritten matter, which would necessarily take a very considerable time—and valuable time—from the general body. I think it would be better to submit it as amendments and let it take its course.

Dr. McBrayer, Asheville: I move that the report be accepted without being read in full.

Dr. Crowell, Charlotte: I second that motion.

Dr. ————: I don't think it will cost much more to print twenty pages than it will to print five pages, and I think this matter should be put before every member of the profession in the State.

Dr. Anderson, Statesville: Will not ample time be given next year, after the reading of this report, for each member to know the contents of the same? It seems to me that it would not be necessary to send copies all over the State.

Dr. McBrayer: It seems to me that this discussion is not in order.

By the PRESIDENT: All in favor of the motion made by Dr. McBrayer, make it known by saying "aye."

Motion carries.

By the PRESIDENT: According to the decision last year, the report was to go to the general body at this meeting. Some report regarding this matter must be made to the general body at this meeting.

DR. A. J. CROWELL, Charlotte: It goes in with the general report of the work done by the House of Delegates.

DR. MCBRAYER: If this report is printed, while the work is being done, some extra copies can be struck off at practically no cost.

By the PRESIDENT: *These recommendations will not be printed in the Transactions.*

The motion is made and carried that this report be printed and mailed to every member of the Society.

By the PRESIDENT: Is the Nominating Committee ready to report?

DR. J. HOWELL WAY, Waynesville: I beg to submit the following report:

The Committee on Nominations met at the Selwyn Hotel, Charlotte, at 8:00 P. M., Tuesday, June 20, 1911.

Those present were:

First District—Dr. W. H. Ward, Plymouth.
Second District—Dr. K. P. B. Bonner, Morehead City.
Third District—Dr. J. A. Dozier, Southport.
Fourth District—Dr. E. T. Dickinson, Wilson.
Fifth District—Dr. J. P. Monroe, Sanford.
Sixth District—Dr. Albert Anderson, Raleigh.
Seventh District—Dr. T. F. Misenheimer, Morven.
Eighth District—Dr. J. M. Turner, North Wilkesboro.
Ninth District—Dr. T. E. Anderson, Statesville.
Tenth District—Dr. J. H. Way, Waynesville.

OFFICERS.

The following officers were elected for the ensuing year:

President—Dr. A. A. Kent, Lenoir.

First Vice-President—Dr. J. P. Munroe, Charlotte.

Second Vice-President—Dr. W. P. Horton, North Wilkesboro.

Third Vice-President—Dr. J. G. Murphy, Wilmington.

Essayist—Dr. R. N. Duffy, New Bern.

Orator—Dr. John H. Tucker, Charlotte.

Leader of Debate—Dr. M. E. Street, Glendon.

Committee on Legislation and Public Policy—Dr. R. H. Lewis, Raleigh; Dr. G. G. Thomas, Wilmington; Dr. L. B. McBrayer, Asheville.

Committee on Publication—Dr. E. C. Register, Charlotte; Dr. D. A. Stanton, High Point; Dr. A. H. Rose, Smithfield.

Committee on Scientific Work—Dr. L. B. Newell, Charlotte; Dr. J. J. Phillips, Tarboro; Dr. J. S. Harrison, Elm City.

Committee on Finance—Dr. H. D. Stewart, Monroe; Dr. H. M. S. Carson, Edenton; Dr. C. O. Abernethy, Raleigh.

Committee on Arrangements—Dr. L. B. Morse, Hendersonville.

(The Committee appointed had to be changed, account of change of place of meeting for 1912).

Councilor for Fourth District—Dr. M. M. Saliba, Wilson, vice Dr. J. J. Phillips, resigned.

Committee on Obituaries—Dr. E. G. Moore, Elm City; Dr. A. W. Knox, Raleigh; Dr. M. L. Stevens, Asheville.

Place of Meeting, 1912—Hendersonville, June 18.

Delegates to South Carolina Medical Association—Dr. L. D. Wharton, Smithfield; Dr. Albert Anderson, Raleigh; Dr. J. P. Monroe, Charlotte.

Delegates to Virginia Medical Association—Dr. J. W. Long, Greensboro; Dr. M. Bolton, Rich Square; Dr. F. M. Register, Tillery.

By the President: Gentlemen, you have heard the recommendations of the Nominating Committee. What shall we do with it?

The original report of the Nominating Committee named Morehead City as the place of meeting. This was changed to Hendersonville by a majority of the votes of the body. With

this exception the report and recommendations of the Nominating Committtee are accepted.

Dr. J. Howell Way, Waynesville: The Committee on Nominations desires to submit this supplemental report: Dr. A. A. Kent, of Lenoir, having been elected President of the Society, feels that he must resign as Councilor for the Ninth District. The Committee recommends that Dr. David J. Hill be appointed Councilor to succeed Dr. Kent.

By the President: If there is no other business to come before the House of Delegates, then this body will adjourn.

Dr. McBrayer, Asheville: I move we adjourn.

Dr. Wharton, Smithleld: I second that motion.

The motion carries and the House of Delegates adjourns, sine die.

Report from House of Delegates read by the Secretary, as follows:

Report accepted, and Secretary instructed to have same printed and send each physician in the State a copy of the report of the Committee on the President's address of 1910.

By the President: At the meeting a year ago a Special Committee was appointed to take under consideration some recommendations of the Phesident. That Committee reported to the House of Delegates their recommendations. The House of Delegates decided that a number of copies should be printed and that a copy should be mailed to each member of this Society during the next twelve months and that the matter should come before the next general meeting for final action.

It would perhaps be fair to say, inasmuch as the resolution last year said that the matter must come before this body this year at the general meeting, it would perhaps be proper for you to take action.

Now in regard to this matter which involves a little change in the constitution, to come up twelve months from now, will you, as a body, agree for that to be printed and mailed to you to-day, or that it be read to you to-day?

Dr. Ross: I move, Mr. President, that the rule be suspended and that this be mailed to the doctors throughout the State.

Motion carried.

Treasurer's report read and accepted.

TREASURER'S REPORT.

Amount on hand, June 22, 1910	$1,513.09
Amount collected to date	2,145.00
Interest	27.00
Total	$3,685.09
Disbursements	$2,354.80
Balance on hand, June 20, 1911	$1,330.29

H. D. Walker, *Treasurer.*

The above report we find correct.

H. N. Abernethy,
E. T. Dickinson, *Committee.*

Conjoint Session State Board of Health.

Dr. George Thomas, Wilmington, *Chairman.*

ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH.

Watson S. Rankin, M.D., Raleigh.

Mr. President, Members of the State Board of Health, and Fellow-Members of the State Medical Society:

I have the honor to submit, in obedience to Section 8, Chapter 62, Public Laws of 1911, the annual report of the Secretary of the State Board of Health. I shall read that part of this report which refers to the general work of the Board, and Dr. C. A. Shore, director of the State Laboratory of Hygiene, and Dr. John A. Ferrell, Assistant Secretary for the Eradication of Hookworm Disease, will read the part of the report which relates to the work directly under their supervision, and which part they have prepared.

Since I last stood before you in my present capacity, a year has gone into history, and fourteen thousand North Carolinians have passed through the wide-flung portals of sanitary ignorance and civic indifference into eternity. We approach our subject through a vast cemetery. We find ourselves in surroundings conducive to serious thought. In passing, note the dimensions of the city of the needlessly dead—a Greensboro or two Fayettevilles entombed, sixty acres of graves, eighteen and a half miles of graves placed side by side. Here they sleep, in last year's graves—your people, your neighbors, your children. The sod that covers them lies loose and broken. No grass grows and no flowers bloom to hide the disturbed earth. So dumb nature sympathetically symbolizes the sob-shaken sensibilities and crushed hopes of 80,000 mourners.

A dying baby may bequeath to a parent a sympathetic interest in helpless infancy which initiates and sustains efforts that ultimately reincarnate what would otherwise have been a life lost in a thousand happy and useful lives. So the fourteen thousand that have passed from among us during the past year should bequeath to us a deeper interest in the fundamental problem of public health. It is for us to say whether all these people shall have died in vain, or whether their

deaths, by arousing us to more determined efforts, shall be the means of saving the lives of thousands otherwise doomed to follow them shortly. In this way alone can we partially atone for the costly indifference of the past.

CAUSE AND CURE OF DISEASE POLITIC.

The intelligent treatment of disease strikes at the root of the trouble and removes the cause. Likewise, intelligent opposition to disease in the body politic aims primarily at the cause. Now, people are not dying unnecessarily by the thousands because they are too miserly to spend money to save the lives of their own families; they are not dying from any lack of confidence in the medical profession. They are dying from ignorance. A sympathetic mother goes over to a neighbor's a quarter of a mile distant to help nurse a case of typhoid fever. She helps to bathe and to feed the patient. She carries out the discharges. Without disinfecting her hands she goes back home and prepares the food for her family, and in two weeks her husband and two children are down with typhoid fever, poisoned by ignorant sympathy and affection. In a small hamlet of three hundred people in the eastern part of the State there were thirty cases of typhoid fever in sixty days last summer, and 80 to 90 per cent. of these cases gave retorts similar to that cited above. Of course, the typhoid bacillus made these people sick, but what planted it in their bodies? Ignorance. Figure it as you will, you will be driven to the conclusion that the ultimate and basic cause of disease in the body politic is ignorance. In public health work, at least, Ingersoll is right, for "the only sin is ignorance." But some one short-sightedly points out that intelligent people, even sanitarians, have these preventable diseases. So they do, not ignorantly contracted, but ignorantly given in such cases.

Recognizing ignorance as the cause of disease in the body politic, we are forced to the conclusion, universally accepted by sanitarians, that education is its cure. "Sanitary instruction is even more important than sanitary legislation," said the Earl of Derby, eminent both as a sanitarian and as a legislator. Now, if education is the remedy, who should prescribe it, and who should administer it? Is it not the duty of the medical profession to insist upon the use of this life-saving remedy? Is it not the duty of our system of public education to administer this remedy? What avails it to teach children the fundamentals, if they are not to be used by the child in learning obedience to Nature's first law, self-preservation; if they are worthless in assisting the child to save one-third of the years that are his natural birth-right? When

it comes to fundamentals, the laws of life and sanitation are fundamental to the fundamentals of education.

State Medical Society, Local Medical Society, Individual Doctor—does your influence count in the school at home? Have you used it? Are the children in that school taught how to live? Why not?

EDUCATIONAL WORK OF THE STATE BOARD OF HEALTH.

This work is carried on through the Bulletin, special literature, newspaper articles, and addresses. Most of the addresses are delivered before organizations of one kind or another, and especially to teacher's assemblies.

The Bulletin's mailing list continues to grow. Last year I announced that this publication went to 11,500 homes. It now reaches 20,000 homes. This includes all the doctors, preachers, lawyers, seven thousand of the ten thousand public school teachers, all of the newspapers of the State, and a large number of lay readers. We realize that there are several ways in which the Bulletin should be improved. In the first place, it should be issued on time. With the additional help supplied by the last legislature this will be possible in the future. In the past, the large amount of work to be done by a small office force, plus the delay of State printers in supplying official publications, has made it impossible to get the Bulletin out promptly. But for an additional mailing expense of $20.00 a month, I should be strongly in favor of making the Bulletin a semi-monthly publication.

In the form of special literature we now have on hand pamphlets on typhoid fever, flies, malaria, hookworm disease, sanitary privies, septic tanks, quarantine and disinfection, and the care of watersheds. Before a great while we hope to add pamphlets on pellagra, tuberculosis, smallpox and vaccination, and the care of infants.

Last July we began supplying the newspapers of the State with weekly articles of from three hundred to five hundred words each, dealing with important public health questions. This work was continued for three months, but had to be dropped on account of the pressure of the more mandatory duties of the office.

Now, in concluding these remarks on the educational phase of the public health work of the Board, allow me to say that this is by far the most important work that we are doing, but important as it is, compared with the possibilities of sanitary accomplishment through a well ordered system of sanitary instruction in our public schools, it is like the guerrilla warfare of the semi-civilized compared with the irresistible army of a Count Oyama. Plant the prolific seed of sanitation in

the fertile soil of plastic minds, and the old fellow with the scythe will get a distinct limp in his gait.

RECENT LEGISLATION.

The General Assembly of 1911 was more liberal with the cause of public health than any preceding Assembly. Their treatment of this fundamental problem should receive the hearty commendation of our profession. The public health appropriation was increased one hundred and twenty per cent, making the total appropriation now available for this cause $26,000 annually. This is exclusive of the printing. As compared with the other states of the Union, we stand fourteenth in population, twenty-third in wealth, and about nineteenth in our public health appropriation. We are not spending as much on the public health as we should, by any means, but we are keeping fairly well in line with the other states in the rapid development of public health work.

Next in importance to the legislation increasing the appropriation is the legislation affecting our quarantine law. Inasmuch as the changes in this law relate to the practice of every physician, a few words in regard to the amendment law may not seem out of place. Under the old quarantine law, the management of contagion was entirely within the jurisdiction of the local authorities, county and municipal. The majority of the counties and towns, appreciating the grave responsibility associated with the management of contagious diseases, enforced the law properly. A few, however, did not. The State could not compel them, and their indifference or negligence in quarantine enforcement made them expensive neighbors to adjoining counties. Now, the new law places quarantine enforcement under the State Board of Health, and counties and towns contracting contagious diseases from other counties and towns, in the future, have the right to demand that the State Board of Health shall see that the careless county enforces the quarantine regulations.

Now my experience as a doctor and as a health officer convinces me that the popular conception of proper quarantine enforcement is very vague. Many people and a few doctors, perhaps, seem to think it very nice to have the quarantine law, even if it is understood that it is to be largely disregarded. They believe that it gives their community a law-abiding reputation, indicates a certain degree of civilization, and possibly has an educational effect. In my opinion, an unenforced or half way enforced quarantine law is a positive menace to public health, often nothing less than a death trap. Misplaced public confidence in quarantine fills public places where a deadly contagion walks abroad

with helpless children, many of whose lives become sacrificed to irresponsible quarantine service. Let us have either rigid quarantine or none.

There are only four quarantine diseases in North Carolina—whooping cough, measles, diphtheria and scarlet fever. Add to these smallpox and you have the five reportable diseases. The law requires that attending physicians shall report these diseases when they suspect them. This is the extent of the State's demand of practicing physicians in the enforcement of quarantine. It is certainly not excessive, and the great majority of physicians will not begrudge their country so small a service.

As would naturally be expected, the position which I advocated in my last annual report relative to the management of smallpox, and which the last General Assembly endorsed, has been considerably commented upon. Most of the comments have been favorable, and the health officers of the State seem especially pleased to have some method of enforcing compulsory vaccination where the local health authorities are afraid to pass a compulsory vaccination ordinance. As you probably know, this law is of a local option kind, allowing those counties or towns that prefer the quarantine of smallpox to have it. I am using whatever influence I can command with county commissioners and boards of aldermen to have the following principles, stated in the April Bulletin, adopted in the local management of the disease. *First,* the prevention of smallpox is a vaccinated population. *Second,* this is best accomplished by a compulsory vaccination law. *Third,* where this cannot be had, anything which tends to protect and maintain an unvaccinated population is a contributing factor to increased smallpox liabilities. *Fourth,* quarantine protects only an unvaccinated population, promising them a protection that is imperfect, that they do not deserve, and the effect of which is mainly to retain and to augment their numbers, thereby augmenting the smallpox liabilities of the community. *Fifth,* the quarantine of smallpox is antagonistic to the public health interests of society.

I believe about fifty to seventy-five per cent of the state has decided to desist from interfering with the laws of nature and of God, which, under a heavy penalty, will ultimately enforce vaccination, the only protection from smallpox as a public health menace.

Under the heading of legislation I should properly call attention to two more important features of the health act, or "House Bill 606," a bill certainly abreast of the times in name, by mere chance being the six hundred and sixth bill introduced. A county board of health to look after the health interests of the county, to elect a county superin-

tendent of health, etc., takes the place of the board of county commissioners for the performance of these duties. The functions of the county board of health are more distinctive than those of the former county health authorities, and we have reason to expect better service in county health work in the future. Another most important amendment extended the jurisdiction of the vital statistics law, the most fundamental health law, to towns with a population of five hundred or over, thereby placing about one-fourth of the population of our state under the death registration law.

BOARD OF HEALTH ORGANIZATION—FUTURE WORK.

As to the future: The tree planted by the far-seeing Dr. Thomas A. Wood and cultivated by the long-suffering Dr. Richard H. Lewis has now a well buried root and a vigorous trunk, and branching, or specialization along certain lines of health work, is now well under way. The number of branches or divisions of work and their relation to the parent trunk and to each other must be carefully considered. There are certain general principles basic in properly organized health work. The State Board of Health, through their executive officer, are as the trunk to the branches. The Board must bear the ultimate responsibility for the execution of the health laws of the state. They must supply the common need of all the branches with the vital sap, in the form of educational material, necessary for the sanitary education of the public; they must exercise a co-ordinating control over all the branches or subdivisions of health work, but not enough to blur the individuality of the heads of the different divisions, which would hinder specialization, an essential to progress. To summarize, the functions of the Board proper are executive, educational and co-ordinative.

In nature, specialization or differentiation of structure and labor takes place as soon as the parent organism has developed sufficiently to maintain its own existence and at the same time assist to co-ordinate the additional functions assumed by its offspring. In the organization of our health work we will do well to pattern after the all wise organization of nature. The execution of the health laws of the State, and the preparation and distribution of educational literature, upon which thousands of lives depend, are the mandatory duties of the Board. After the Board is able to carry out these duties properly, then it should branch out and take up special lines of work. In taking up special lines of work, only as many special lines should be adopted as can be successfully prosecuted, or we will find the parent trunk supporting a large number of rudimentary sprouts. Right here I wish

to say that a wise selection of men in the persons of Doctors Shore and Ferrell to be placed in charge of the special lines of work of our Board has atoned for an otherwise unavoidable violation of the foregoing principle in organized work. The Board's executive officer has not had, on our very limited appropriation, sufficient assistance to even carry out as they should have been the executive and educational functions of the Board, and therefore has certainly not had sufficient time to keep in as close touch with the special lines of work of the Board as the importance and proper co-ordination of the work demanded.

The wise selection by the Executive Committee of a competent assistant to the Secretary, Mr. Warren H. Booker, will remedy this defect in the future. Mr. Booker's education as a civil engineer and his experience in the engineering department of the Ohio State Board of Health makes available in the office of the Secretary expert advice so frequently needed in public health work. I am sure that Mr. Booker, in securing and interpreting for the Board important data bearing upon filtration, sewerage and purification plants, drainage problems, and other engineering concerns, will thoroughly justify his selection by the Executive Committee, as my association with him so far has strongly indicated.

Specialized public health work takes different forms in different places. Most boards of health, as soon as they can execute the health laws and carry on a fairly well sustained educational campaign, take up laboratory work in hygiene. Others develop a division of industrial hygiene. Some develop a system of medical inspection of schools, a strong tendency where the urban population is large. Most boards, however, specialize in the direction of certain diseases,—in the north, tuberculosis; in the south, hookworm disease; in the tropics, yellow fever and malaria.

It is gratifying to know that the two special divisions of work under the North Carolina State Board of Health in all probability have no equals in the South. The State Laboratory of Hygiene has done more analyses in the last two years than any other similar laboratory in the South, and in the hookworm campaign the men directing it, Dr. Ferrell, and the amount of money invested by the state in it, puts us well in the front of this work in other states.

Through a recent arrangement between the Board of Health and the Board of Directors of the North Carolina Sanitorium for the Treatment of Tuberculosis, an anti-tuberculosis campaign will be inaugurated in the early fall. The plan of this work will be comprehensive and will be carefully worked out before any active steps are taken. The com-

pletion and final equipment of the sanitarium at Montrose as a basis of supplies and center of activity in this conjoint work, with the campaign supported by two or perhaps three men and pushed with determination, gives us good reason to look upon the tuberculosis situation in North Carolina as encouraging. The Board of Health work has therefore two well developed branches, with a third started.

A PARTING WORD.

What part is the State Medical Society, the county medical society, and the individual doctor playing in this great organized conquest of disease? Has the profession exhausted its resources in behalf of the public health? It anything short of that obedience to the highest professional duty? Would it not be well for the President to appoint a committee to recommend to this Society three things: *First,* certain definite lines of public health work that the State Society should engage in; *second,* definite public health work that the county society should undertake; and *third,* certain definite public health duties that the individual physician should assume. There are a number of opportunities that might be suggested by such a committee to the State Society. For example, the State Society could confer a great service upon the health interests of this state by adopting a resolution requesting the county medical societies to regulate the compensation of public health officers—a resolution similar to one adopted by the Society several years ago regulating the compensation for medical examinations for insurance companies. The State Society night, with profit to itself and great benefit to the public of North Carolina, adopt a plan of work recently taken up by the Colorado State Medical Society. That society elected a publicity committee, whose duties are to secure press articles from the members of the State Society, to revise them when necessary, and to endeavor to have them published by as many of the papers of the state as possible. This work in Colorado has been very successful, and the profession in North Carolina can do anything they decide to do that any other state profession can accomplish. I have been asked by Dr. Delia Dixon-Carroll, chairman of the Educational Committee in this State of the American Medical Association, to ask this society to request the various county medical societies to elect from their number some one who would agree to deliver one lecture a year to the nearest Woman's Club on some one of thirty-six subjects to be submitted by Dr. Dixon-Carroll. The county societies that will assist in this educational work should notify Dr. Dixon-Carroll, who is in communication with the Women's Clubs of the state. There are

many other suggestions, probably more valuable than the ones I have made, that others could offer the committee.

Such a committee might recommend that county medical societies act favorably upon a resolution of the State Medical Society regulating compensation for public health service, and that the county societies co-operate with the publicity committee above suggested in securing the publication in their county press of articles submitted. They could adopt a definite public health program for their county, and with their combined influence they could succeed in securing from county boards of health and boards of county commissioners rulings and ordinances that would save hundreds of lives right around them. The county society could go before the county board of education and have a tremendous influence in securing the teaching of sanitation in the public schools of that county,—the ultimate solution of the public health problem. The county society might ask the candidates for the legislature to address them on some public health subject, following this with an informal discussion of the subject of sanitation, and the state's health would then not be in such jeopardy when the General Assembly convenes as was the case once upon a time.

Some people believe in New Year's resolutions and other resolutions. I am one of them. A good resolution may act as a reminder, if nothing more. Some time ago I saw a form of pledge gotten out by the New York State Health Department and submitted to the physicians of the state. Those who signed it pledged themselves to use a solution of nitrate of silver in the eyes of all new born children coming under their care. Suppose a form of pledge binding the signer to use his active, persistent, and determined efforts to secure in the public school at home the teaching of sanitation, in the church at home one or two sermons a year on how to live here instead of hereafter, pledging the signer further to suggest to each family in which he was called to treat a case of malaria, hookworm disease, tuberculosis or typhoid fever that they write the State Board of Health for literature on the particular disease in which the family would be at that time profoundly interested, were submitted to and signed by five hundred or a thousand conscientious North Carolina physicians. This work by any one of them might be of minor importance, though, in my own opinion, it would save one life a year; but when it is multiplied five hundred or a thousand fold its beneficent effect would be incalculable.

From the time that Hippocrates wrote his oath until the dream of Ponce de Leon and the interesting hypothesis of Metchnikoff are realized, the saving of human life has been and will be the primal and

fundamental purpose of all true disciples of Aesculapius. For more than two millenniums they have furnished the munitions of war and have generaled the battle. Today the multitude has scented victory and is growing impatient. Vague murmurs are heard. It is rumored that the old generals in the fight are not pushing the great campaign as vigorously as hundreds of thousands of preventable deaths demand. Our profession has traveled a long road and has fought its way almost single-handed, and now the victory, sanitary reform, is almost within our grasp. A more vigorous campaign is demanded by the multitude, who see the end in sight. We must lead or we must follow. It is yours to say which.

REPORT OF ASSISTANT SECRETARY FOR TUBERCULOSIS, NORTH CAROLINA STATE BOARD OF HEALTH.

C. A. Julian, M.D., Thomasville.

Gentlemen: I take pleasure in presenting to you my annual report, being a recountal of the progress the department of tuberculosis has made from June, 1910, to June, 1911.

The work has progressed beyond the most sanguine expectations, but the scope of this report will hardly permit of a full detailed account of all that has transpired during the past twelve months.

The tuberculosis movement is beginning to show results, and is slowly but surely leaving its impress upon the ever advancing white plague. LLL

We have endeavored to follow a broad, conservative course in all our efforts to educate the public in regard to the prevention of tuberculosis, believing that a general health programme, rather than a purely tuberculosis one, is necessary to accomplish the results we desire. Being convinced that unsanitary housing conditions are the principal sources from which tuberculosis, as well as many other diseases originate, we found upon investigation that several agencies were making a partial study of the field, and we have been co-operating with these agencies in a comprehensive study.

We are pleased to record the hearty sympathy and support received from the Durham Anti-Tuberculosis Society, The Committee of One Hundred of Winston-Salem, Charlotte, Greensboro, Raleigh, Fayetteville, Statesville, Reidsville, Salisbury, Hickory and Wilson Associations, and sixty different committees in other towns of the state.

Believing that the enormous death rate from tuberculosis in this

state was due primarily to the ignorance and carelessness of our people, it was decided that the policy of this Association should be educational rather than relief giving. Your Secretary in consultation with the President of our Association and Dr. Farrand, Executive Secretary of the National Association for the Study and Prevention of Tuberculosis, decided to place the National Tuberculosis Exhibition in several towns in the state, and that exhibition furnished a suitable means of reaching the masses. From January 12th to the 25th our first exhibit was held in Greensboro with an attendance of several thousand people. A program was arranged for every afternoon and evening. Prominent speakers gave addresses and talks which were published in the press. Stereopticon pictures showing the conditions which produce tuberculosis and the methods of cure, were shown every night. Since then the exhibit was held at Winston-Salem, Raleigh and Durham with an attendance of thousands.

To impress upon the Committees the necessity of cleanliness and the value of fresh air and light we exhibited a fac simile dirty and dark room and then converted it into a clean and wholesome room.

LECTURES

The Association has extended its influence by giving talks or lectures wherever opportunity was offered. Your Secretary has delivered lectures in Raleigh, Durham, Winston-Salem, Charlotte, Lexington and High Point during the year. Other speakers have been secured and have given stereopticon lectures in several towns.

PRESS ARTICLES.

The press has been of the greatest assistance in publishing accounts of meetings, addresses and other educational matter. We have mailed literature to three hundred and fifty (350) newspapers in this State.

TUBERCULOSIS RECORD.

I have endeavored to obtain a record of all the cases of tuberculosis in the State as well as a record of all deaths from tuberculosis during the past two years. A map was prepared to show the location of distribution of the disease and the deaths.

Several months ago I mailed a circular letter to every county Superintendent of Health requesting them to give me the number of cases of tuberculosis in their respective Counties and also the number of deaths from tuberculosis. I only received ten replies. This spring I wrote a personal letter on the same subject and have received 60 replies to date; when I get the data, I expect to complete a map which I have in process showing the location and distribution of the disease.

At our Greensboro meeting last year it was ordered that the secretary have printed and mail to the principal newspapers and every business organization in the State a set of resolutions passed at that meeting.

I append the resolutions and letter of transmittal:

Agreeable to instructions given me at the last meeting of the North Carolina Association for the Prevention of Tuberculosis, held at Greensboro, N. C., March 15-16, 1910, I am herewith enclosing the resolutions adopted by the Association, which explain themselves.

I hope you will present these resolutions to your honorable body and take such action as you deem wise.

You are aware that every State in the Union is waging active warfare against all preventable diseases, and especially against the greatest scourge of mankind, the "Great White Plague," and North Carolina should not be behind.

The North Carolina Board of Health has joined forces with the North Carolina Association for the Prevention of Tuberculosis, and is giving active support and bringing every influence to bear to rid North Carolina of this dread disease.

RESOLUTIONS.

Whereas, tuberculosis is known to be communicable, curable, and preventable; and

Whereas, at present, the loss to society in deaths and in money justifies a concerted effort on the part of the public:

Resolved, that the attendance at the North Carolina Association for the Prevention of Tuberculosis calls to the attention of all religious bodies and business organizations, manufacturers and employers, the great need of the popular enlightenment of the citizens of the State and for institutions for the cure of unfortunate sufferers, and recommends that the representatives from the various counties of North Carolina be instructed to pay special attention to the enactment of such legislation as will aid to provide for an adequate appropriation to provide for the establishment and maintenance of such institutions, and that every legitimate organization of the State lends its co-operation to wage a campaign for the results commensurate with our needs.

Be it further resolved, that a copy of these resolutions be forwarded to the religious bodies, trade and business organizations, and leading papers of the State, and that every board of trade and chamber of commerce be requested to adopt resolutions expressing the desire of their various communities, and publicly request the representatives of their respective communities, when elected, to vote for an adequate

appropriation to aid in preventing and curing tubercular patients throughout the State, when the next General Assembly convenes in Raleigh in 1911.

I have complied fully with that order and have mailed a copy to 350 newspapers and every business organization in North Carolina.

In December and January I have mailed in letters, postal cards, circulars and programs 7,521 pieces. From February to June 15th ten thousand eight hundred booklets and Don't Cards to that number of addresses; 550 personal letters and 2,900 circular letters.

NEEDS.

Although we believe that a good showing has been made during the past year, there is yet much to be done. In addition to the present activities, the Association should have some one visit every important town in the state and arrange for nurses to follow up the instructions given to the public and educate the tubercular poor in their homes; and an emergency fund to aid and relieve such patients as cannot be provided in other ways. We should have better co-operation of the medical authorities in every community in the registration of cases. We should wage a campaign in every town and form a small local organization to see that the streets are kept clean and have fewer disease breeding tenements and lodging houses. A model tenement should be arranged in every town as an object lesson for the community. We should inspect the factories and see that each worker has more air and light and safe guards against dust of all kinds. We should go to every large town and assist in establishing a dispensary system where patients suffering from tuberculosis may secure a rigid examination with proper advice and treatment free of charge to those who are in need. We should have a better supervision of schools.

For the future our call lies pretty clear:

1. The establishing a dispensary system, and the employment of supervising nurses in every town.

2. The enlarging the facilities at the Montrose Hospital to meet increasing needs.

3. The continuation of our educational propaganda along lines already begun, with the arranging and preparing of a traveling tuberculosis exhibit to be conducted by the Association and Board of Health. The same instructor to visit schools, churches and factories, and give personal instruction.

4. Support of a movement for the establishment of a hospital for advanced cases on the property of every county home in the state.

5. A permanent camp for tubercular children to be maintained by the State.

6. Co-operation with manufacturing interests.

7. Work with labor organizations and employees.

8. Strengthening present, and forming new Auxiliary Committees and planning work for them to do.

9. Each local Association should see that an anti-spitting ordinance is passed in its town, and is thereafter observed. Secure the passage of such ordinance; distribute literature and placards showing the danger of spitting and the spread of disease thereby. After these methods secure convictions of the spitters.

10. An organized effort to get the Legislature to pass *An Act* defining the powers and duties of local Health Officers and Boards of Health in the matter of the protection of the people of the State of North Carolina from the disease known as tuberculosis.

At the January meeting of the N. C. Association for the Prevention of Tuberculosis I formulated a bill defining the powers and duties of local health officers and boards of health in the matter of the protection of the people of North Carolina from the disease known as tuberculosis and requested that same be presented to the State Legislature then in session. The Association voted that a special committee present same to the Committee on Medical Lagislation, but the bill was returned to me with the assurance that it was a needed piece of legislation, but that it was not just the right time to present it.

The work of the education of the masses has just begun.

We believe that during the existence of this department the public has learned a great deal. You can now tell a patient that he has tuberculosis without causing him to die. You can now make people see the necessity of separating the patient from the rest of his family. This department has worked hard with every existing business organization in the State to use its influence in the increased appropriation for the State Board of Health; it has written every member of the legislature and invited them to our Annual Association which met at Raleigh during the session of that body.

We had enthusiastic addresses made before the members of the Legislature and we had enthusiastic members to pledge publicly their hearty support of appropriations commensurate with our needs.

We wrote letters to physicians in every County requesting them to call upon their respective members of the House and Senate explaining our needs.

We have done our best with the small funds at our disposal, for

every cent that has been expended in the crusade outside of the small salary of your Secretary has been supplied by the membership fee of the N. C. Association for the Prevention of Tuberculosis and the receipts from the sale of Red Cross Christmas Seals.

I most earnestly request that you appropriate sufficient funds to continue the work and to see that this department is dignified by your hearty support.

REPORT OF DIRECTOR LABORATORY OF HYGIENE.

C. A. Shore, M. D., Raleigh.

I beg to submit the following report of work done in the State Laboratory of Hygiene for the year ending May 31, 1911.

A total of 26,827 specimens were examined against 3,948 in the preceding year. The chief development has been in the hookworm work owing to the co-operation with the Rockefeller Hookworm Commission, but an increase in number of other specimens has been general.

		Positive	Negative
771	Sputum	219	552
364	Diphtheria	129	235
460	Widal	128	332
119	Malaria	9	110
52	Gonococci	26	26
159	Rabies	89	70
39	Pathology, 39 Specimens.		
58	Urine, 58 Specimens.		
20	Miscellaneous, 20 Specimens.		
22,865	Feces, 22,865 Specimens.		
	Hookworm	7,149	
	Ascaris	1,648	
	Hymenolepis	508	
	Trichocephalus	289	
	Strongyloides	74	
	Oxyuris	30	
	Taenia saginata	3	
	Negative	13,969	
1,920	Water, 1,920 Samples.		
26,827			

This shows an increase of 680 per cent.

In enumerating the number of specimens of water examined (1,920 for one year) it should be borne in mind that each specimen receives five separate bacteriological tests and from three to twelve chemical tests. It can thus be better understood that this portion of the work is of real magnitude. Probably a larger number than is examined in any other state laboratory.

The specimens examined may be divided into two divisions: *first*, those required by law of all commercial water supplies, including bottled waters, and *secondly*, domestic supplies, principally wells. The latter are made free of charge for physicians when sent in the proper containers.

The last year's work again emphasizes the filth of the open top bucket well—the old oaken bucket of song and sentiment. It may supply the family with cool water direct from the bottom of the well, but it may also serve for a wash basin for the hands and mouths of every servant and ragamuffin in the neighborhood. It should be placed along with the surface privy as one of the most important dangers to the public health.

	Bad	Questionable	Good	Total	% Bad (Approx.)
Pumps	59	31	232	322	.18
Buckets	213	62	60	335	.63
Wells (?)	12	3	8	23	.50
Springs	35	25	32	92	.38
Cisterns	1	3	18	22	.05
Total private	320	124	350	794	.41
Municipal	49	129	736	914	.05
Bottled water	24	16	137	177	.13
	393	269	1,223	1,885	.13

An improvement is shown in the condition of the bottled waters which I believe is directly due to the law requiring an axamination of these waters. Several notifications of unclean water were published and in each case the fault was found and corrected. The fear of an unfavorable report has also caused a number of the springs to make sanitary improvements and there has been a general improvement in sanitation at the springs and in the method of bottling.

In addition to the examination of specimens two other lines of work are done by the laboratory. These are the distribution of diphtheria antitoxin and the administration of the Pasteur Antirabic treatment.

ANTITOXIN.

Regarding the first, the law has heretofore benefitted only the indigent, but we hope for a more widely beneficial arrangement soon. It is my opinion that the only satisfactory method will be for the State to manufacture its own antitoxin. This is desirable not so much because an exhorbitant price is charged for diphtheria antitoxin, as this argument could be used for many other therapeutic agents, but because this price often prevents its use and constitutes a danger to the public health. We have supplied 54 counties and 10 municipalities with a stock of antitoxin for the indigent.

RABIES.

In the past twelve months 165 persons were treated with antirabic virus, which is the exact number of the preceeding twelve months. Of these 126 were known to have been bit by rabid animals. In 33 cases the diagnosis was not definitely established, but the history makes a diagnosis of rabies very probable. There remain six cases where treatment was probably *not* necessary but when there is reasonable doubt, the responsibility of refusing treatment can not be taken. In addition to the patients who received treatment there is scarcely a day passes without consultation from persons bit by non-rabid animals.

Since the beginning of the work we have treated 424 persons and so far we have been so fortunate as to have no fatalities. During the year the brains of 89 mad animals were sent to the laboratory coming from 34 counties in every section of the state. There are few who know the extent of the suffering and distress caused by the prevalence of this disease and the end is not in sight. The cure is well understood and has been proven to be effective in other countries, but the confinement of dogs is scorned and opposed in our more democratic country.

The work of this laboratory is free of charge with few exceptions. There is a fee for the antirabic treatment but nine out of ten patients furnish evidence of inability to pay. In the examination of specimens for physicians there are only two fees: $5.00 for the examination of pathological tissues, and $1.00 for urinary analyses. All the other examinations are made free of charge.

The increase of our work has been gradual but large, and we had all the specimens that we could examine, but the force and efficiency of the laboratory is also increasing and we want to aid a larger number of the physicians of the State. With this in view it is the intention of the Director of the laboratory to visit many of the meetings of the

County Societies in order to briefly explain the work of this laboratory and acquaint a larger number of physicians with the exact aid that we are prepared to offer. In the past 3 years we have received specimens from every county in the State except three: Dare, Camden, and Graham. But even yet a large majority of the physicians have not availed themselves of the privileges of the laboratory.

ANNUAL REPORT HOOKWORM COMMISSION OF THE NORTH CAROLINA BOARD OF HEALTH.

JOHN A. FERRELL, M.D., ASSISTANT SECRETARY TO NORTH CAROLINA BOARD OF HEALTH FOR HOOKWORM DISEASE, RALEIGH.

June 1, 1910, June 1, 1911.

Mr. President and Gentlemen:

One year ago it was my privilege to come before you the first time as a new appointee of your Board and the Rockefeller Sanitary Commission as Director of the Campaign Against Hookworm Disease in this State. Little had been done other than to study the prevalence and distribution of the disease in the State as this was revealed by examinations of college students; outline a plan of campaign; and prepare literature for distribution.

After many delays, occasioned by the newness of the whole work and a lack of precedent for guidance, the campaign began to take shape. The State was divided by counties into nineteen sanitary districts with a view to having in each one railroad facilities. By this time three splendidly equipped physicians had entered the work as District Directors of the Hookworm Campaign. The work of not one of them has been surpassed in any State where the campaigns are being conducted. Their pluck, zeal and tact enabled them to present to members of every social realm, without wounding sensibilities, arousing resentment or antagonism, a subject which on account of its associations is difficult to handle. The men referred to are Dr. B. W. Page, who entered the work July 1st; Dr. C. W. Strosnider, beginning July 15th, and Dr. C. L. Pridgen, July 30th. During the remainder of the summer a general educational campaign was carried on in an effort to reach the sixty county teachers' institutes, the physicians and editors in the towns where the institutes were held and as far as practicable those in surrounding and intermediate towns. In this and subsequent work lec-

tures on hookworm disease were delivered, the worms were exhibited, literature distributed and where possible, the eggs were demonstrated with the microscope. Victims of the disease and in some instances cured cases were exhibited. The need of a general knowledge of the disease, and the necessity for co-operation in securing the general adoption of measures for its recognition, cure and prevention were emphasized. On September 1st, each Director was assigned to a Sanitary District representing the central, eastern and western sections of the State, respectively, with a view to becoming better acquainted with conditions in the three geographical divisions of the State. Each Director by working with and through the physicians and the county superintendents of schools, who as a body endorsed our campaign, endeavored to reach the children, teachers and patrons of the schools. As the closing of the spring terms approached, having rounded up as far as practicable the district work, other districts were entered for the purpose of making sanitary and infection surveys preliminary to taking up later the regular work. These surveys for the counties in the districts worked number fifteen, and in addition other counties have had the surveys completed. Briefly stated each county infection survey is based on a microscopic examination of not less than 200 representative school children, ages six and eighteen, inclusive, taken at random. The sanitary surveys are based on an inspection in each county of not less than one hundred homes to ascertain the sanitary values of the privies to be found. The scale of values for the diffirent types of privies is based on a classification agreed to by all the State Directors in the South. The two surveys are made as nearly as may be in the same communities or townships. By recording this information it will be possible in five or ten years to re-survey the counties. A comparison then of the first and second surveys will indicate the progress being made in getting rid of the disease and in the improvement of sanitary conveniences. Already the County Boards of Education in five counties have been persuaded to provide separate sanitary privies for the boys and girls at the various school houses throughout their respective counties.

On May 1st of the present year, Dr. P. W. Covington joined our forces as a District Director. His earnestness and enthusiasm, together with his love and ability for the work, bespeak in the highest terms for his future in the campaign. It is our desire that with the five thousand dollars appropriated for the hookworm campaign by the legislature we may have two other able, tactful, energetic and enthusiastic physicians to take up the work as District Directors of the Cam-

paign, and that the work of the three new men may soon rival that of the three pioneers who have set the pace.

Though five counties is too large a territory for one man, even if each one does take five counties, only thirty of the one hundred counties can be reached at one time. To keep alive the work begun the right man must be constantly on the ground. Additional District Directors should therefore be placed in the field so that in covering the State such frequent shifting of the men may be avoided. We are hopeful that the educational influence of our campaign may serve to aid in building up a sentiment which will demand that a County Superintendent of Health be employed for his entire time and thus afford some competent local officer who can be held responsible for advancing this and the other health work.

Next in importance to the work of the District Directors come that of our State Laboratory of Hygiene. Under the able direction of Dr. C. A. Shore, and a splendid corps of assistants, its work has grown by leaps and bounds until now it makes more bacteriological examinations than any other laboratory in the South. Only one year ago the examinations for hookworm disease did not require the entire time of one man. Now six men paid by the Rockefeller Commission devoting their entire time to hookworm examinations find much difficulty in handling the work. To illustrate this growth, I shall give the number of specimens examined for hookworm during each of the past five calendar quarters:

	1910			1911
	Second	Third	Fourth	First
1st Quarter.	Quarter.	Quarter.	Quarter.	Quarter.
70	486	2,421	4,972	9,045

During April and May of the present quarter, or up to June 1st, 6,318 additional specimens have been examined, making a total thus far of 23,312 examinations for hookworm infection. In this number of examinations, 7,276 hookworm infections were found, and 2,543 other intestinal infections. Through some of the seven other intestinal parasites are quite common, the hookworm was found three times as prevalent as all the others combined. The work includes an examination of more than one thousand of the State troops, more than one thousand orphans, a thousand children in the State schools for the blind, deaf and dumb, and the reformatory; and nearly one thousand inmates of insane asylums. A large percentage of the remaining 20,000 represent school children who were examined at the instance of

the District Directors. Without the aid of the Rockefeller Commission funds the laboratory could not have handled even a large fraction of the new work, and without the aid of the laboratory our progress in the work would have been greatly retarded. Now that the volume of this work will surely increase and the limit of the amount the Commission will spend in this State has been reached, I commend that all possible be done to enable the Laboratory to meet the increased demands of the coming year.

In the central office, with the aid of an efficient stenographer, we have endeavored to keep in touch with every agency available for disseminating knowledge concerning the disease, its recognition, cure and prevention; arousing interest and response; preparing and distributing literature and newspaper articles; tabulating the daily reports of the District Directors; disbursing funds; managing the general business of the campaign and planning the work. In this connection I desire to express my appreciation to the various members of the State Board of Health for their suggestions relative to the work, and to the Secretary to the Board for the co-operation rendered. By enumerating in a summary some of the work of the central office, together with that of the District Directors, and the Laboratory a fair idea of what up to this time has been accomplished will be given. Up to June 1, 1911, the following was recorded:

1306 physicians out of about 1600 in the State have answered inquiries relative to hookworm disease.

597 physicians reported having treated the disease.

21,098 victims of the disease have been treated and reported by physicians.

99 counties of the 100 have infected people.

591 doctors have used the Laboratory to have hookworm examinations made.

23,312 specimens have been examined for hookworm ova infection.

7,276 of these specimens showed hookworm infection.

2,543 other intestinal infections of severe varieties were found.

726 physicians have asked for and received literature for distribution among their patrons.

692 schools have been visited, lectured to, inspected, and in many instances, microscopically examined.

69,000 school children were thus reached.

58,217 people were lectured to in popular audiences.

353,700 pieces of literature have been placed in the hands of the people. These included pamphlets, bulletins and leaflets on hookworm

disease; pamphlets on the Sanitary Privy, and prescription pads for the physicians.

6,000 public school teachers have been acquainted with the disease in 75 county teachers institutes and elsewhere.

14,600 letters have been sent to doctors, educators, editors, legislators and other officials.

2,080 miscellaneous business letters have been sent out.

From this summary it can be seen that the work has been extensive and that it is bringing results. The number of doctors reporting having treated the disease has grown in one year from 183 to 597, an increase of more than 400, the number of laboratory examinations from 500 to more than 23,000, and the number of cases treated from 3¼ thousands to 21,000. Besides being examined and treated for the disease, the people as a result of the educational work are being aroused on sanitary measures. Sanitary privies are beiing built and used at homes and school houses in every section of the State.

Plans for Ensuing Year: The plan of work proposed for the ensuing year embraces a continuance of the work done last summer among the teachers at their county institutes and normals. This prepares the way to our entering the schools, lecturing to the pupils, having them examined, and sending messages and literature to their parents. We wish then to resume the school work in the fall, at all times seeking the co-operation of physicians, newspapers, officials and other influential citizens.

A new departure in the work will be the establishment of a line of temporary dispensaries of hospitals for the free examination and treatment of the disease. This work will be first tried in some of the counties where the infection is heavy. We hope that it will serve to restore to health a large number of our citizens who otherwise will not seek treatment; that it will exercise a wonderful educational influence on our people generally looking to the cure and prevention of hookworm and other diseases; and that it will bring the physicians and people closer together and cause the campaign against the disease and poor sanitary conditions to continue even after the dispensaries or hospitals have gone to new fields. Before entering a county we shall ask for the endorsement and support of the physicians, the county boards of health and education, and for endorsement and some financial support from the County Commissioners. At least one District Director and one laboratory man will be found at the appointed times at the dispensaries. Free microscopic examinations will be made, and when found positive, the medicine will be handed to the patient to be taken after re-

turning home. At the hospital the examination will be made and if infection is found the patient will be put to bed and the medicine administered at the hospital. When one treatment is complete the patient will be allowed to go home. In a few days he will return for a second examination, and if still infected will be given a second treatment, etc. The necessary tents, cots, etc., for this hospital have been secured as a loan from the Public Health and Marine Hospital Service. The plan is working nicely in two States. A large number of physicians have already endorsed the plan of work. We would be glad to know it will meet with the approval of the Medical Society as a whole

Though the campaign is still in its infancy, we are encouraged by the accomplishments above enumerated and by the perceptible swinging of public sentiment from its humorous, indifferent or resentful mood to a serious and responsive attitude. The splendid sympathetic spirit found to exist among our doctors, editors, educators, legislators, and the people generally is encouragement sufficient to urge us on in the prosecution of the campaign and to stimulate us in the belief that the seed of effort, activity and money sown in the cause will prove prolific in the fertile soil and develop into a strong public sentiment, and give as a final harvest freedom, not alone from hookworm disease, but freedom from many other preventable diseases.

THE SIGNIFICANCE OF HOOKWORM DISEASE.

C. S. Grayson, M.D., High Point.

Egyptian chlorosis was mentioned by the Egyptian writers three or four hundred years ago. Subsequently tunnel-workers and brick-workers were shown to suffer from the same disease. Soon the parasite was associated with the disease and was regarded as an important cause of tropical anemia. However, it was not until the interest aroused in tropical diseases by the Spanish-American War and the work of Ashford in Porto Rico that the attention of American physicians was called to the disease. In 1902 Stiles took up the study of the problem and demonstrated to the astonishment of the profession that the disease was the cause of the common anemia of the Southern States.

In the study of hookworm disease one cannot fail to note the striking resemblance between the effects of malaria on the Grecian empire and the effects of hookworm disease on the Southern people of today. In prehistoric times fair-haired invaders from the North came down and took possession of that country. These were the people who developed the arts, sciences and philosophies that we are only further developing today. Not satisfied with their limited territory they sent armies into adjacent territory. Their soldiers returning from Persia and Egypt came home suffering from malaria. Their prisoners and slaves brought back with their armies also had the disease.

From the imported cases the mosquitoes became infected and transferred the disease to the primitive Aryan stock from the North who did not possess the natural inherited immunity which had been acquired by a race whose ancestry had contended with the disease for centuries. In these non-immune subjects malaria was severe and fatal, consequently the country was almost depopulated so far as the fair-haired peo-

ple from the North were concerned, and with them went the artists, philosophers and scientists.

Like Greece the inhabitants of the fair Southland originally came from Northern Europe. With the slaves from Persia and Egypt the Greeks imported malaria; with the slaves from Africa we imported the hookworm. Malaria exterminated the white inhabitants of Greece and the descendants of their yellow slaves replaced them. Will hookworm disease exterminate us and will the descendants of our black slaves replace us?

We cannot correctly estimate the importance of hookworm disease without studying its relation to other diseases. The influence of hookworm disease on the tuberculosis death rate, for instance, is so apparent that Dr. Stiles recently read a paper on that subject. Osler describes the phthisical chest as a long, narrow, flat chest with depressed sternum, the scapulæ having the appearance of wings. In describing the hookworm subject Dr. Ferrell, among other things, says when infection occurs before maturity the chest is thin, the ribs are prominent and the shoulder blades stand out as angel's wings.

No doubt but that in many cases the so-called phthisical chest is simply a hookworm chest, the debilitated condition resulting from hookworm disease makes good ground in which tubercle bacilli will surely fall. We know now that the pale, ill-developed child with capricious appetite, so long regarded as one predisposed to tuberculosis, is simply a hookworm subject. Dr. Heiser of Manila, reported that when the prisoners at Bilibid Prison were treated for hookworm disease their tuberculosis death rate dropped 50%. Then tuberculosis plus hookworm is twice as fatal as uncomplicated tuberculosis. Not only is this true but the lowered resistance of the hookworm subject invites tuberculosis. Moreover, it is estimated that there are twice as many cases of tuberculosis as there would be in a hookworm free population. Taking this into consideration the death rate from tuberculosis would be four fold that of a hookworm free population.

In a certain stage of hookworm infection numerous worms crawl through the body, and in the circulation of the blood they pass through the lungs, making numerous holes which form admirable places for tubercle bacilli to attack.

For the recovery of tuberculosis two things in particular are necessary; fresh air and good food. In hookworm disease the oxygen carrying properties of the blood is reduced 50%. The opportunity to utilize the fresh air is reduced and the chances to recover from tuberculosis are very much decreased. The other most important factor in connection with the treatment of tuberculosis is the digestion and assimilation of nutritious foods. Because of the presence of hookworms there are numerous hemorrhages into the intestines and the intestinal wall is thickened and in a catarrhal condition. All these things decrease the amount of food one can digest, and lessens the chances for recovery from tuberculosis. Tubercular patients from the North, free from hookworm disease, come to our sand hills and in a majority of cases recover from even advanced cases. Natives, the subject of both hookworm disease and tuberculosis, die notwithsanding the favored climate. In this favored climate, then, eradicate the hookworm and at the same time you will, to a great extent, eliminate tuberculosis.

The punctured surface of the intestine, in all probability, is a portal of entry for the typhoid bacillus. Large numbers of these bacilli rapidly pass into the blood stream and with their toxins overwhelm the patient before immunity can be established. To this add the debilitated condition of the hookworm subject and the deficient oxidation of the blood and you have decreased the typhoid patient's chances to recover 50%. Is hookworm disease, then, an etiological factor in typhoid fever? Of every 100,000 inhabitants of Scotland six die annually from typhoid fever, in Germany seven, in England and Wales eleven. The death rate per 100,000 in the United States is 46; in North Carolina 66. Differences in climate, soil and geographical peculiarities are not sufficient to explain these variations in

death rates. It is evident, therefore, that typhoid fever is more prevalent and more fatal in territory infected by the hookworm.

The anemic and debilitated condition probably doubles the death rate in pneumonia where the proper oxidation of the blood is so important and so essential to recovery. The same is true through the whole category of diseases. Is hookworm disease an etiological factor in pellagra? Pellagra only occurs in territory infected by hookworms. The cases I have seen have been in hookworm subjects or in those that had evidently suffered from the disease.

Bulletin 78 of the Agricultural Department states that the approximate number of cases of malaria in the whole United States is 1,500,000. The number of cases of hookworm disease in the South alone is estimated at 3,000,000. Moreover, the average malaria patient is incapacitated for a few weeks only, while the hookworm patient is one-fourth incapacitated for 365 days in the year. It has been conservatively estimated that 25% of the people of North Carolina have hookworm disease. The population of North Carolina is a little more than 2,000,000, therefore, there are 500,000 sufferers from the disease in our State. As stated above there are in all the United States 1,500,000 cases of malaria annually. North Carolina then has one-third as many cases of hookworm disease as there are cases of malaria in the whole United States. The victim of hookworm disease is one-fourth incapacitated. One-fourth of 500,000, which is 125,000, equals the number totally incapacitated in North Carolina. If malaria incapacitated its victim one-twelfth we observe that one-twelfth of the 1,500,000 cases also equals 125,000. Therefore, North Carolina looses as much from hookworm disease every year as the whole United States looses from malaria. What does the total disability of the 125,000 inhabitants mean to our State? Surely these people are worth as much as illiterate negroes, and prior to the Civil War they were worth $1,000 each. Multiply 125,000 by 1,000 and you have a loss to the State of $125,000,000.

Sir Herbert Spencer said the first requisite to success in life is to be a good animal. Why does the Western farmer live in his $10,000 house and ship corn and wheat to the South while the Southern farmer lives in a $1,000 house and buys grain from the West? Is it difference in soil altogether? It is because the Western farmer is first of all a good animal, and because the Southern farmer has converted his alimentary canal into a culture tube for hookworms and consequently is too lazy to plant a crop, much less harvest it. The hookworm has done more damage to the cotton crop of the South in the past ten years than the boll-weevil will do in the next 50 years. Of late we read a great deal of the evolution of Southern farming. Suppose you go to a farmer in the neighborhood of St. Louis and tell him of the wonderful progress of the Southern farmer and that this pale, narrow chested, angel-winged, hookworm farmer will soon be shipping corn and oats to the West. What will he say? The St. Louis farmer will say, "I am from Missouri."

As stated above, it has been estimated that one-fourth of the people of North Carolina have hookworm disease, and that that fourth is one-fourth incapacitated. Can our industries, our farms and our factories, keep pace with those of other States while we attempt to operate them with men and women one-fourth incapacitated? One-fourth of our school children also are one-fourth incapacitated. Therefore of every $16.00 spent for education $1.00 is lost. By reason of this inability on the part of the children to assimilate the learning they would were they free from hookworm disease, the State annually looses $187,500; and for the same reason Guilford county annually looses $16,000.

Of all examinations made in the State laboratory of hygiene to the present time about 42% have been positive. Examination of 600 students of Davidson, Wake Forest, A. & M. College and the University showed an infection of 33 1-3%. These students represent the very best families in the State,

and show how prevalent the disease is among the better classes. The State Militia, consisting of 1,230 men, was examined with the following result: In the Eastern section of the State 58% were infected; in the Central section 36%, and in the Western section 32%. Of 100 children at the Odd Fellow's Orphanage at Goldsboro 54% were infected. Examination of the children at the Methodist Orphanage at Raleigh showed 61% infected. To repeat, the students of the colleges just enumerated represent the very best families in the State. These young men are to become our teachers, our preachers and our political leaders. Need we expect great teachers, great preachers and great political leaders to develop from these weak, debilitated hookworm subjects? From such material can our State develop jurists, congressmen, and senators that will measure up to the standard set by other States? Why has the South no presidential timber today? It is because our presidential timber is worm-eaten. The hookworm has done more in the last half century to prevent a Southern man from occupying the presidential chair than all the Yankees North of the Potomac River. 'Tis true all of our men are not hookworm subjects, but it takes hosts of red-blooded voters behind a man to make him president.

A recent bulletin of the State Board of Health states that hookworm disease has caused the death of ten times more people than were destroyed on both sides during the Civil War, and it has cost the South more than that war cost the nation.

There are 500,000 cases of hookworm disease in North Carolina and, I believe, there are about 2,000 doctors in the State. That gives each of us 250 cases. How many of yours have you treated? One day you shall have to give an account of your stewardship. This is one of the most important campaigns that has ever been undertaken. The call has been issued for volunteers. Let us take our place in the firing line. Let us with unsheathed saber and fixed bayonet go out to do battle against this enemy of mankind.

RESULT OF THE EXAMINATION AND TREATMENT FOR HOOKWORM DISEASE OF THE PUPILS AT THE STATE BLIND SCHOOL FOR THE WHITE, AT RALEIGH.

HUBERT B. HAYWOOD, JR., M.D., RALEIGH.

In spite of the fact that one commiserates the blind and thinks that the burden of blindness is sufficiently heavy for them to carry, we found on examination that almost 50% of the pupils at our State School for the white were afflicted with hookworm infection, an extra burden for their tired shoulders and a disease which is entirely preventable with the proper sanitary arrangements.

It is indeed a sad commentary on our boasted twentieth century civilization that these children whose scope for work and pleasure and future usefulness is limited by their blindness which is all too often due to the criminal carelessness of others, should be infected by an intestinal parasite whose poisons reduce the oxygen carrying power of the blood, render them anæmic, and produce a langour which further reduces their efficiency and renders them a ready prey for any of the acute infectious diseases.

Out of one hundred and seventy-two pupils examined, eighty-three were found to be the hosts of the parasite. In addition to the uncinaria, various other intestinal parasites were found. Seventeen were infested with the ascaris and of these twelve showed the hookworm in association. Three small boys showed the presence of the balantidium coli. One boy had the trichocephalus dispar in association with the hookworm. The feces of one little girl revealed the ova of the dwarf tapeworm.

It is interesting to note that the percentage of girls infected was almost as large as that of the boys. About fifty-six per cent. of the boys were infected and about forty-two per cent. of the girls.

It is also worthy of mention that with one of two exceptions all of the pupils having the hookworm were from the country districts, being largely from the farms.

There was not a single case from a city or town where there was a sanitary sewerage system.

None admitted that they had ever been dirt eaters, although doubtless some in the crowd had been in times past.

Practically all who were questioned and who remembered gave a history of having had ground itch.

The probability is that most of them have had ground itch as they are nearly all of them from the rural districts where it is almost the universal custom for children to go barefooted during the summer months.

Of the grown girls in the school about one-half were infected. The hæmoglobin or color index of the blood was taken for the twelve infected ones. Of this number two registered close to the range of normality. The other ten ranged from 80% Hb. to as low as 55% Hb. These same girls were weighed. About three-fourths of them were under weight. A differential blood count was made on all of them. Without exception they showed an eosinophilia of from 3% to 8%, and a relatively low proportion of polymorphonuclear cells.

The teachers and matrons were asked to note their habits, attention in the class-room and general aptitude for work and concentrated effort.

Nearly all of them were constipated, easily fatigued, showed a lack of power of concentration and to summarize briefly, were not quite up to the mark mentally or physically.

Out of this crowd of grown up girls in one month's time since receiving the treatment, eight of the twelve have gained weight in amounts ranging from a half pound to six pounds.

The hæmoglobin percentage was taken again in a month's time and as against a record of 55% as the lowest 75% is now the lowest in the crowd. Only two of the girls now fall below 80% Hb., and the average is now about 85%, which is close

to the normal. One girl in spite of the fact that she has been stubborn because she did not want to take the treatment, and has refused to eat, has gained in hæmoglobin percentage from 80% to 92%. The matron reports that they are all improved in every respect.

One girl in particular is worthy of mention. On entering school last fall she was very thin, pale, nervous, and had no appetite, and was under suspicion of being tubercular. At times she complained of considerable abdominal pain, and was in the infirmary every few weeks on account of the same. In fact, her condition had been diagnosed as appendicitis at her home during the summer months. One month after treatment her Hb. had increased from 65% to 82%, and she had gained six pounds in weight, and is doing better work in the class rooms and admits that she is feeling better than she has in a long time. There has certainly been a wonderful revolution in her whole appearance and general makeup.

These girls have been placed on no special tonic save the regular institution fare and routine. Results speak well for the excellent care which they have received there.

The blood of an equal number of boys was examined. The degree of anæmia was not as great as among the girls. The lowest recorded being 68% Hb. On a differential count they showed practically the same thing as the girls on eosinophilia and a relatively low polymorphonuclear leucocytosis. Since treatment the lowest recorded Hb. index is 80% as against about 75% before treatment. Nearly all of the boys have gained in weight and good spirits since the treatment and a notable lack of lassitude has been noted in many of the children, who previously were very much inclined to spend their time in dark corridors and halls indoors unless driven out of doors in the sunshine.

They now play out of doors with the other boys and avail themselves of the pleasure of the swings and gymnasium which are in the yard. All of them say that they feel better and a

glance at some of them before and after speaks more eloquently than some of our newspaper advertisements.

The treatment of the entire number of eighty-three was carried out, without a single untoward incident. Full doses of thymol for the age of the patient were given and each pupil was treated without any bad symptoms. Salts was used as a purgative both before and after the thymol. No food was allowed during the course of the treatment which was practically a period of twenty-four hours.

The temperature and pulse were noted in the cases of the larger girls in particular. Practically all of them showed a subnormal temperature. 96 2-5° F. was the lowest recorded. The pulse of practically all of the pupils was taken at various times during the treatment and was found to vary considerably. In about one-half of the pupils it was slowed to the extent of from six to ten beats to the minute, while in others it was accelerated to about the same degree.

Each patient was given two treatments which were on the average about one week apart.

In the instances when the stools were examined and strained through cheese cloth after the first treatment no worms were observed, but in all cases examined after the second treatment worms were found in abundance in the stools. One child infected with hookworms and round worms also expelled large segments of a tape worm.

The odor of thymol which is peculiarly offensive pervaded the infirmary and clung to everything about the neighborhood. The stools were watery, with mucus of a grayish green color and were very strong with the odor of thymol. The results obtained here, and the number found infected in spite of the fact that Dr. Stiles said that blind children would run less risk of being infected because of their inability to wander far afield, should argue for a more extensive habit of examination of the feces of our anæmic patients.

The end justifies the means.

EFFECT OF SANITATION ON HOOKWORM DISEASE.

CLAUDE L. PRIDGEN, M.D., RALEIGH.

Mr. President and Gentlemen:

I wish to present to you in the briefest possible way a report of my personal investigations as to the effect of sanitation on hookworm disease, and, without further comment, allow you to draw your own conclusions.

As I present these findings, I ask you to keep in mind five things:

First. That no negroes are included in this report. Their methods of sanitation, as we know, are almost always very bad; yet of nine hundred negroes that I have recently examined, I have found only about 8% of them to be infected. This I will not attempt to account for here.

Second. That in all the schools referred to as being under sewage influence, there are in every instance a number of children from sections that are not sewered. In my limited time I have had no chance to separate these from the others, and this, necessarily, as you see, causes the percentage of infection in the sewered districts to run higher than it really should.

Third. Where it was impossible to ascertain the type of sanitation used at the home, the school or community type has been used. If time permitted I could cite you a number of cases of children who enjoyed the best of sanitation at home, and who were innocent sufferers from uncinariasis on account of very poor sanitary conditions at the school.

Fourth. That these investigations were made during the past winter in the mountain counties of our State which we have heretofore considered as only mildly infected. I am firmly convinced that, with the natural drainage, pure water and gen-

eral climatic conditions found in this part of our State, there is no reason for hookworm, typhoid and other such diseases to exist in these parts except solely a lack of proper sanitation.

Fifth. That in making these examinations, no cases were selected because of their apparent infection, but each school was examined as a whole and the citizens in many cases sent their specimens with those from the school at their own volition.

With these facts before you I present the following report of my investigations for your consideration:

In McDowell County I examined 179 people who did not use closets of any kind; of these I found 134 infected with hookworm, or 75%. In the same county I examined 125 people having the ordinary open privy, and of these I found 67 infected with hookworm, or 54%. I also examined in the same county 179 people who used the modern sewerage, and of these I found 62 infected, or only 35%—a difference of 40%.

That I may not tire you, and also in order to be as brief and clear as possible, I have tabulated my findings in these counties as follows:

	No. Privy.			Open Privy.			Sewer		
	Ex.	Inf.	%	Ex.	Inf.	%	Ex.	Inf.	%
McDowell	179	134	75	125	67	54	179	62	35
Catawba	69	28	41	49	15	31	331	47	15
Burke	449	282	63	144	55	31	1233	353	28
Yancey	337	112	48	265	47	18	.....	.....	....
Mitchell	265	148	56	102	22	22	.....	.....	....
Caldwell	318	206	64	162	76	46	462	193	42
Buncombe	....	.....	....	80	14	18	1176	128	11
Cleveland	11	7	64	118	50	43	221	25	12
Vance	....	.....	....	50	16	32	220	17	8
Wake	....	.....	....	....	....	....	133	21	16

We find then that of:

1628 people not using closets, 917 are infected, or 57%.
1095 people with open privies, 362 are infected, or 34%.
3955 people with sewerage, 846 are infected, or 22%.

The sewerage percentage being raised by children from outside districts.

It is also significant to note that:

Caldwell has had sewerage for only two years and shows 42% infection.

McDowell has had sewerage for six or seven years and shows 35% infection.

Burke has had sewerage for eight or nine years and shows 28% infection while Buncombe has had sewerage for 20 years and shows only 11% infection. Buncombe also has a number or sanitary privies now in use.

These figures include the rural investigations as well as the towns with sewerage.

You will bear in mind, gentlemen, that this report covers hookworm alone, and I found infection with eight other intestinal parasites in this section,—in some places quite a heavy infection. I found typhoid, etc., existing there also.

It seems to me, Mr. President and Gentlemen, that these facts speak for themselves, and that they are greater and more convincing arguments than any others at my command. It appeals to me most strongly that they and others similar that could be brought before you urge upon us as professional men the duty of taking up our fight for better sanitation in our State and pushing it boldly and bravely and thoroughly to a happy conclusion.

THE IMPORTANCE OF MILD CASES OF HOOKWORM DISEASE.

Boney Wells Page, M.D., Raleigh.

Though the medical profession and the general public recognize and appreciate the importance of severe cases of hookworm disease, they remain careless as to the great importance of mild cases. Not all persons affected with this disease have a long chain of objective symptoms, such as anemia, dry hair, dilated pupils, edema, cervical pulsations, etc. All these prominent signs may be absent in a given case and still there may be mental and physical degeneracy resulting from the infection.

After inspecting over 300 schools last session and following up the inspection in many instances with microscopic examination, I found that more than half the cases diagnosed microscopically presented no marked signs on first inspection; but on revisiting a number of these schools and the parents of many of these children I found various subjective symptoms.

A comparison of sizes of several of the mild type of a given age with a corresponding number of uninfected children of the same age showed the former were undersized. Lack of development, even in the absence of other symptoms should lead one to suspect hookworm disease.

In most cases intestinal and gastric signs are not much noted and they are brought out only by close questioning. The chief digestive symptoms are fugitive pains in the epigastrium, heartburn eructations and meteorism. These vary greatly and are by no means constant. However, if we fail to correct these minor conditions a distinct neurosis may be developed. Atony may result from the constant irritation of the small intestine by the blood sucking parasites.

When we remember the complex innervation of the stom-

ach and intestine, its far-reaching plexus whose cerebral and sympathetic fibers have many anastomoses with such intimate connections, of both stimulating and inhibitory impulses, we can better understand how a local point of irritation in the small intestine will cause headaches, insomnia, a nervous temperament, neurasthenia.

The nervous system is the most severely affected. There is a reduced power of cerebration, the memory is impaired, and the ambition is weakened. After examining thirty-three young men in a certain high school and finding eleven infected, the principal informed me that he had suspected only one of them having the disease, but only two of the eleven had been able to keep up with their classes.

Dr. Pridgen has observed that on the microscopic examination of several large graded schools the backward sections of the various grades run a higher percentage of infection than the more advanced section of those grades. This would lead us to believe that the mild case as well as the advanced one retards mental development.

The greater number of the mild cases seen after treatment, had improved in weight, feeling, appearance and hæmoglobin after getting rid of what would be considered an insignificant infection.

But aside from the importance of the mild case, relative to physical and mental development, it has yet another phase—its source of danger to the host and to others.

There were probably none but mild cases when the disease first began to attack the American people, but because of a lack of sanitary conveniences these patients reinfected themselves and ultimately the advanced case developed. Persons mildly infected are not only a source of danger to themselves, but they are dangerous to the community in which they live. Through soil pollution one mild case may cause the disease to spread to a hundred different homes in a very few years. From one

locality to another the disease has made steady progress until every section of our State is now infected.

Some communities seem to have mild cases only. It is incumbent upon every citizen to work energetically in such localities before it gains too strong a hold, and while it can be easily eradicated. All children should be closely examined even if most of the objective symptoms are not discovered at first inspection. In all health work, it is the duty of every community, county or state to protect the lives of those who compose it. While the infection is light, stamp it out.

HOOKWORM DISEASE IN ITS INFECTION RELATION TO THE WHITE AND COLORED RACES

Dr. Strosnider, Raleigh.

Up to the present time very little work has been done in our Southern States in a given locality among both races, which would give some idea of the relative infection with hookworm disease. The reason therefor being concisely given in a reply to an inquiry bearing on the subject in question by Dr. J. J. Porter, State Health Officer, of Florida, who says: "We have never seen any manifest evidence in the negro as in the white person, and have had all we can do looking after it where we could see it."

I beg to invite your attention to the following data which has been collected from different sections of North Carolina with a view of showing the percentage of negroes infected with hookworm disease as compared with the white race in the same school district of each county:

I am indebted to Dr. B. W. Page, District Director of San itation, Salisbury, for the following data from Rowan County:-

	No. Exam.	Hookworm.	Per Cent.
Cleveland School, white.....	31	7	22.5
Cleveland School, colored.....	31	2	6.4

I am indebted to Dr. C. L. Pridgen, District Director of Sanitation, Marion, for the following data:

Asheville, Buncombe County—(*Sewered*)

	No. Exam.	Infected.	Per Cent.
Asheville G. & H. School, white....	933	117	12.5
Asheville G. & H. School, colored	545	22	4.

Burke County—(*Sewered*)

	No. Exam.	Hookworm.	Per Cent.
Morganton G. & H. Schools, white....	328	161	49
Morganton G. & H. Schools, colored..	57	9	15.7

(*Rural*)

	No. Exam.	Hookworm.	Per Cent.
Oak Hill School, white	13	6	47
Willow Hill School, colored	43	7	17

McDowell County—(*Sewered*)

	No. Exam.	Hookworm.	Per Cent.
Marion H. & G. School, white	38	29	76
Marion H. & G. School, colored	75	22	31

The following data has been collected by the writer:

Wayne County, Brogden Township.

(*Rural and Sewered*)

	No. Exam.	Hookworm.	Per Cent.
Goldsboro G. & H. School, white	180	36	20
Goldsboro G. & H. School, colored	136	6	4.4

(*Semi-Rural*)

	No. Exam.	Hookworm.	Per Cent.
Mt. Olive G. & H. School, white	160	101	63.1
Mt. Olive G. & H. School, colored	90	15	17

(*Rural*)

	No. Exam.	Hookworm.	Per Cent.
Dudley School, white	31	25	80.6
Dudley School, colored	57	38	67
Parker School No. 2, white	47	38	80.9
Augusta School No. 2, colored	46	15	32.5
Thunder Swamp School, white	39	21	53.8
Shady Grove School, colored	25	16	64
Glenwood School, white	20	20	100
Davis Chapel, colored	19	7	36.8
Seven Rural Schools, white	113	62	54.8
Seven Rural Schools, colored	151	24	15.8

Brunswick County—(*Semi-Rural*)

	No. Exam.	Hookworm.	Per Cent.
Southport Graded School, white	31	5	16.1
Southport Graded School, colored	60	2	3.33

PENDER COUNTY—(*Semi-Rural*)

	No. Exam.	Hookworm.	Per Cent.
Burgaw Graded School, white	157	119	75.7
Burgaw Graded School, colored	51	28	55

NEW HANOVER COUNTY—(*Rural*)

	No. Exam.	Hookworm.	Per Cent.
Middle Sound School, white	9	7	78
Middle Sound School, colored	26	10	38.4

SEWERED STATISTICAL SUMMARY.

	No. Exam.	Hookworm.	Per Cent.
White Pupils	1441	314	21.7
Colored Pupils	738	37	5

NON-SEWERED STATISTICAL SUMMARY.

	No. Exam.	Hookworm.	Per Cent.
White Pupils	651	411	63.1
Colored Pupils	599	164	27.4

COMMENTS ON STATISTICS

Dr. C. L. Pridgen and I have observed that where we have a rise in the infection among the whites, we have a corresponding rise in the blacks, but always a much lower percentage.

Furthermore, I have observed that the infection is higher among the mulattos than among the full blooded African; as was the case in the following colored schools:— Dudley, 67%; Shady Grove, 64%; Burgaw School, 55%. The mulatto pupils in these schools are in the majority.

Suggestions bearing on the probable explanation for difference in percentage of infection.

1st. Toughness of the African's skin on the bottom of his foot may play some part; even though the majority of the negro pupils whom I lectured to last school session gave a ground itch history.

2nd. Late rising in the morning: As a rule the negro youth does not rise early enough to be about during the time when the hookworm larvæ are most active.

3rd. The negro youth's dislike for mud and water: After rains the negro youth usually remains indoors for the reason that they do not like to be in the mud or water. The majority of the negro homes sit out in the open with few, if any, shade trees near enough to serve the twofold purpose of relief and playgrounds. Therefore, the young negro remains in doors until the sun has performed the drying work, and the hookworm larvæ, if any about, have sought protection beneath the surface soil.

4TH. THE GENERAL USE OF SNUFF AND TOBACCO

It is well known that the negro race is an extensive user of tobacco in one form or another. Chewing tobacco and dipping snuff is begun in early youth. In either case frequent expectorations are necessary. Therefore, should the hookworm larvæ come up into the pharynx and mouth its chances for being swallowed would be few as compared with those of being expectorated. Again much of the nicotine is picked up by the system and some of the tobacco saliva is swallowed, which may work hardship on the parasite.

5TH. PIGMENT ACTION

The pigment may have a repellant effect upon the hookworm larvæ.

6TH. SECRETION BY THE SKIN

In view of the fact that the negro race and hookworm disease are old in acquaintance, it may be that an anti-hookworm substance is secreted by the glands of the skin of the full blooded African, which would either lesson the activity, act as a repellant or destroy the larvæ. After finding such a large percentage of young negroes giving a ground itch history, and such a small percentage of the same pupils suffering with hookworm disease, I am led to believe that either the ground itch in the majority of the cases is brought about by another factor, the larvæ killed at their initial point of attack, or by the use of tobacco; or by a cause as yet not mentioned.

RESOLVED, that the County Superintendent of Health of each County in the State, call the attention of the Commissioners of the Counties to the needs of hospital facilities for the care of indigent consumptives and secure appropriations for suitable hospital rooms in connection with County Homes.

WHEREAS, extensive investigations by the Hookworm Commission of the North Carolina State Board of Health in this State show hookworm infection to be wide-spread and rather heavy, especially in rural districts; and, whereas, many of the infected ones will not seek treatment until its effectiveness is demonstrated to them; and, whereas, the recognition generally of the value of treatment will serve to bring the people, doctors, and health officers together and unite them in a common warfare against the disease; and, whereas, with the proper and necessary support the said Commission will operate a line of temporary dispensaries for the free examination and treatment of the said disease.

BE IT HEREBY RESOLVED, That the North Carolina State Medical Society do hereby give its endorsement to the plan of campaign against hookworm disease thus far pursued and to that proposed; that the Society pledges its support to the dispensaries, wherever operated, for the free treatment of all victims of the disease; and that the County Socieites are hereby urged to lend their active support to the work by urging the Commissioners of the Counties visited by the dispensaries to provide the local funds necessary to permit their operation.

QUARANTINE

Chas. O. H. Laughinghouse, M.D., Greenville.

I am assigned a subject that has cost more money, more discord and more strife to the towns and counties in North Carolina than all other preventive methods combined, yet, I am prepared to show that it has obtained less results. Possibly it can be of service in protecting against measles, whooping cough and scarlet fever to an extent, but to my mind this service is questionable under existing conditions. It is not feasible except under military discipline and I believe it is destined to occupy a place in medical history along with "blood letting" in Typhoid Fever.

In spite of quarantine backed up by countless millions of money and experience, Plague continued to claim its myriads of victims from the time when the world was young until Kitasato and Yersin discovered the specific micro-organism in 1894, along with other facts concerning its pathology. This led to a few dollars invested in Flea Powder and Rough on Rats, accomplishing in ten years that which quarantine after working for centures failed to do.

Yellow Fever continued to stalk through the land, hand in hand with the Grim Reaper, making uninhabitable, lands that are now a paradise of productiveness and health. Quarantine though fed lavishly with money and legislative support did nothing but paralyze the business of the disease stricken countries, and make itself conspicuous for its inefficiency.

Small-pox instead of being checked was enhanced by it, as we all know who have had personal experience with the problem in this State. The two have dissolved co-partnership however, the State having placed its disapproval on the iniquitous combination, which gives us high hopes of ridding ourselves of the lesser of the two evils through the power of vaccination.

Anti-toxin has placed Diphtheria in the class of Ephemeral diseases where it will remain, quarantine or no quarantine.

The Micro-Organism of Scarlet Fever, Measles and Whooping Cough, not having been isolated, makes these diseases in our State to my mind more amenable to quarantine than anything else, if for no other reason than to show the public that we as physicians look upon them as maladies to be avoided, rather than privileges to be courted by childhood. Even in these diseases, quarantine is no more than an extra curl to a pig's tail, until the family physician, not in Medical Society meetings only, but in his own community; in his own town; on his own street, next door and in his own house teaches all kinds of folks that these diseases can be avoided, and that the harm they produce is not so much in the immediate discomfort and death they cause as in the terrible sequellæ that follow in their wake. How many laymen in North Carolina, know of the danger lurking in these diseases, to the eyes, ears, nervous system and general development of childhood.

Did time permit I might go on through the entire list of contagious diseases and show that quarantine is futile as a preventive measure in civil life. In military and marine service where conditions make obedience absolute, and where the execution of orders are carried out without question or quibble, quarantine may prove of some service, yet, military medical history shows its futility except as a temporary measure.

In civil life where each person prides himself on being his own commander, and especially in a State where so much stress is laid on personal liberty—and where there are so many people that have nothing, and want nothing but contagious disease and personal liberty,—I am convinced that quarantine is a farce, until people are made thoroughly acquainted with the why of it.

The intelligent and patriotic minority are willing to submit to it, but this class does not need quarantine. Like advice, the thing is superfluous. Those who have sense enough to take it, so far as they themselves are concerned, don't need it, and

those who need it haven't sense enough to take it no matter who it concerns.

Unless public sentiment wants law, law is not law except in name only. Until the general public is sufficiently enlightened to render willing obedience to quarantine, it will be treated with the same respect that blind tigers give to prohibition. We will have to content ourselves therefore with hanging up the "Yellow Sign," and bending our energies towards enlightening the general public as to the gravity of contagious diseases, the futility of quarantine and the utility of cleanliness, screens and drainage.

Heretofore we have never been in position to disseminate this knowledge except in a sporadic way, but today we have the whole educational army at our command. Our splendid State Superintendent of Public Instruction; our County Superintendent of Public Instruction, and the individual teacher, from the college professor down to the pedagogical martyr in the remote rural districts are not only willing but glad to give all the aid they can to the prevention of disease.

The many civic leagues and betterment societies in the various counties and towns are organized, ready and willing to do, if we only show them what to do and how to do it. The individual community societies for the prevention of Tuberculosis are our willing servants, anxiously awaiting our commands. County Commissioners, City Mayors and City Aldermen, if they read the current magazines are bound to be willing to give attention both financial and otherwise to the practical things we would suggest.

The Ministers are having health Sundays here and there, and the best of them, those that are the most pleasing in God's sight, the Abdul Ben Adam kind I mean, instead of always telling their congregation how to die, and where to go after they do die, are actually telling both the saint and the sinner how to live in order that they may put off dying as long as possible. And when that awful moment comes, they are teach-

ing them to die in a respectable, high-toned, cleanly, christian way, rather than with some abominable contagion or infection, that could have been avoided by screens and the free use of pure water internally and externally.

So much is being accomplished by the forces I have just enumerated that I find myself asking the question if they are not doing more with the light before them for the prevention of disease than we are? The State Board of Health and The Laboratory of Hygiene are doing splendid work; they are not neglecting a single opportunity that conditions will allow them to embrace. Occasionally a County Superintendent of Health is doing credit to his community and to his profession, but there are many in the State occupying this important office who are afraid to admit it except on first Mondays. Barring a few public Health officials, I believe that not enough is being done by the individual doctor in his own neck of the woods. Too many of us are depending upon checking disease by quarantine, that is to be observed by a public too ignorant to realize its purpose. It is a hard thing to condemn a man for failing to join the church, when he has never heard of Christ. This Twentieth Century Progress has realized the need of relegating quarantine to the shelf on which medical curiosities are kept.

Sanitation is a necessity to the civilization of today. Educators are going to teach it; preachers are going to preach it; statesmen are going to legislate it; business men are going to pay for it and they are all going at it gladsomely, because it makes their State a better place to live in; it lessens crime, it enhances Christianity; it adds money value to material things, by broadening opportunities for wealth and by making men more productive. To sum it up it adds strength and vigor and brain and character to the average man.

What part are we going to take in this work, not collectively, but individually I mean? We are the local authorities concerning public health. Let's exercise this authority in our own community, not arbitrarily, not arrogantly,—but patiently, per-

sistently, realizing that we have done well, if we but prepare the ground on which to plant the seeds of truth that will blossom, bless and satisfy the ideals of a more perfect day which is yet to come to the people and the profession of our beloved State.

THE PYRAMIDON TREATMENT OF TYPHOID FEVER.

W. C. Brownson, M.D., Asheville.

In the management of Typhoid Fever the reduction of temperature has always been considered as one of the most important objects in view, and the best way for controlling the fever is considered to be some form of cold application to the body surface. The general tub bath since its importance was so strongly insisted upon by Brand, 50 years ago, has come to be the orthodox treatment of the disease and the administration of drugs has occupied a minor role.

The bath treatment has given most excellent results and has largely reduced the former mortality of the disease but it cannot be carried out systematically and thoroughly except in hospital practice, and here if cases are numerous it requires a large force of attendants, there is increased danger of infecting the nurses, and above all it is a harsh remedy.

When carried out in the regulation manner of years ago a tub bath of twenty minutes duration, temperature of the water 70° F. every three hours where the thermometer reached 102.5 the treatment certainly is heroic and almost always bitterly opposed by the patient.

One of the most trusted authorities in all matters medical while advocating the bath treatment, has said of it: "This rigid method however is not without serious drawbacks, and personally, I sympathize with those who designate it as entirely barbarous. To transfer a patient from a warm bed to a tub of 70° F. and keep him there twenty minutes or longer in spite of his piteous entreaties, does seem harsh treatment and the subsequent shivering and blueness look distressing. A majority of our patients complain of it bitterly and in private practice it is hardly feasible." If the application of cold to the surface

of the body was the only method by which temperature could be safely reduced; the only means by which a large percentage of recoveries could be obtained we could bear its rigors, but it is entirely unnesessary.

There is a method by internal medication which will keep down temperature far more easily than the bath, which is without danger, which can be carried out easily and where the ultimate results I am confident will equal any attained by the most conscientious and skillful use of the bath treatment and it is this method which I wish to urge upon your consideration.

The Pyramidon treatment of Typhoid Fever was first recommended by Valentini in 1903 in an article published in the Deutsche Medicinische Wochenschrift (No. 16, April) at any rate this is the first communication on the subject of importance or which aroused any general attention. Since that time various articles on the subject have appeared in the medical journals of Europe. None, so far as I am aware, in this country.

Valentini warmly recommended Pyramidon as a safe, pleasant and sure means of controlling the temperature throughout the course of the disease, and not only this, but as a remedy which would obliterate as a rule most of the unpleasant symptoms of the disease, the delirium, the hebetude, the dry tongue, etc.

Pyramidon (di-methylamido-antipyrin) possesses the same physiological action as antipyrine but apparently has no such depressant effect upon the heart, while its action upon the nervous system is even more powerful and lasting.

As to the safety of Pyramidon, Valentini has given it continuously in Typhoid for seven weeks with no ill effects, the heart showing no evidence of depression, the pulse coming down with the fall in temperature and remaining slow and regular. As Valentini says and as other observers have reported since, when ushered into a ward where patients were under treatment by Pyramidon no one would imagine that the

cases had Typhoid fever for all of its customary manifestations are lacking. Take a case in the second week of the disease, the temperature is normal, the pulse is slow, the tongue moist and clean, the patient perfectly clear mentally, wishing to get up and begging for something to eat. Valentini's reports read like a fairy tale, one can hardly credit his description of specimen cases under his management, but the results he describes can be duplicated by any one who chooses to adopt the treatment and carry it out according to his direction. These in brief are the following:

The Pyramidon should be given every two hours day and night. This Valentini regards as especially important; the medicine he uses dissolved in plain water, the taste being not unpleasant, a strength of solution should be used that represents .2 to .4 G. to the tablespoonful. In very serious cases, .4 G. is necessary, in the average case .2 to .3. A tablespoonful of the solution is to be given every two hours, day and night, in 24 to 48 hours the temperature drops to normal usually and remains there. The thermometer should be used before each dose is given, if the temperature is found to be subnormal, wait two hours more, then if temperature is rising give again.

Valentini reports but a small number of cases, 19 only, most of these it seems were children. Valentini does not regard Pyramidon as a specific and does not claim that the disease is shortened by its use, but it controls symptoms in a marvelous manner. Of his 19 cases 12 were very serious, 4 quite serious, and 3 could be called mild. In the first group there were two deaths, both of them due to complications, a mortality of 10%. In such a small number of cases the percantage of recoveries does not count for much naturally.

Bruno Leick reports a large number of cases treated according to Valentini and wrote most enthusiastically of its results in the "Munchener Medizinische Wochenschrift," No. 12, 1907. He says he has treated a great number of Typhoid cases by Pyramidon.

While he gives statistics of 113 cases treated by him in his hospital service during four years from 1903-1907, he says that not all of them used Pyramidon, so just how large a proportion of recoveries he reached by the Valentini treatment we do not know, but that he was exceedingly pleased with it is very evident. 11 of the 113 cases died, but as five of these were fatal within five days of their entrance to the hospital they should scarcely be counted. Excluding these we have six deaths in 108 cases. Surely a very good showing. Leick insists upon the importance of following Valentini's methods, the medicine to be given every two hours, day and night. Leick's usual dose is 3 grains. Severe cases 5 grains, children a smaller dose. The unfavorable reports that have appeared on the Pyramidon treatment he contends arise from faulty administration, usually too large doses at too long intervals, then there may be profuse sweats these do not occur with the smaller doses frequently repeated. Leick recommended that the thermometer be used before each dose, though he does not regard it as particularly necessary as he has frequently known the thermometer to show a temperature as low as 95° and still the patient's condition to be perfectly good.

It may be urged in objection to the Pyramidon treatment as is observed by Leick that it masks all the usual symptoms by which we have been accustomed to judge of our patient's condition but the pulse together with the appearance of the patient will guide you safely enough.

Since the summer of 1907 following a thorough study of Leick's article, I have used the Pyramidon treatment in most of the Typhoid fever cases that have come under my care. In some atypical cases where the temperature was erratic and never inclined to be much elevated,—I have not used the Pyramidon.

In 28 cases I have tested the Valentini treatment modifying it somewhat according to circumstances. The age of my patients has ranged from four (4) to fifty-five (55) years, some

of the cases have been mild; some quite severe. Some have occurred in strong vigorous subjects, some in the weak and debilitated. Some have had the advantages of faithful nursing and careful feeding. Some have had but poor service in these respects. Yet of the 28 cases all have made good recoveries while they have given their physician far less trouble and anxiety than he ever experienced in any previous series of Typhoid cases.

In but one case have I had any reason to believe that the Pyramidon had any depressant effect, this was in a boy aged four whose temperature was unusually difficult to control and who for days had a dose of 2½ Gs. every two hours. This boy had two attacks of choking with difficult breathing and rapid pulse each time coming on at night. The Pyramidon was discontinued for some hours then resumed as before. In four weeks from the time of onset this boy was convalescent and whether the Pyramidon was responsible for his two bad nights I don't know. In no other instance have I had the slightest occasion to suspect Pyramidon of depressing the heart, though I have given it for five weeks steadily and with no other medicine whatever. In the first cases in which I gave Pyramidon, being a little fearful of possible weakening of the heart I gave aromatic spirits of ammonia and strychnine in connection with it, but finding soon that nothing of the kind was necessary I abondoned all stimulants.

If the temperature is to be kept steadily at the normal point, then it is necessary that the medicine be kept up at night as well as during the day. But if it goes up a little at night no harm is done. I have contented myself ordinarily with holding the temperature down below 100° during the day, giving no dose from ten o'clock at night till six next morning in the average case. It is desirable that the thermometer be used before each dose is given, but as Leick observes this is not essential. It prevents an unnecessary dose being given sometimes, this is about all. In many of my cases the only nursing

of the patient has been afforded by members of the family. Some of these families have been too poor to buy a thermometer and the temperature has never been taken except at my visits.

When no thermometer is at hand I have advised that when ever the medicine is due the attendant should apply the warm hand to the side of the patient's chest or abdomen, if the skin seems cool, or if there is free prespiration, the dose is to be left off for that time, in two hours the test should be applied again and the dose given if it seems that there is fever.

In this way the remedy can be administered with perfect safety and unnecessary dosing be avoided. Leick used a 2% solution of Pyramidon giving 10 cubic centimeters at a dose, when the temperature is not controlled by this dose the same quantity of a 3% solution is used. The average dose would be a little over 3 grains.

I have generally prescribed a dram of Pyranidon to four ounces of water (practically a saturated solution) dose a teaspoonful, the average teaspoon holds nearer 2 drams than one. so it may be considered that the patient gets 3 Grs. at a dose. A teaspoonful and a half may be given where the smaller dose proves unequal to holding down the temperature.

Pyramidon has been accused of producing vomiting, this it may do when used in large doses at long intervals, but in the dose advised and with the two hour intervals it will not disturb the stomach. Vomiting may occur in Typhoid no matter what medicine is used or if none at all is taken. Some of my cases have had vomiting from the onset, they have been put upon Pyramidon and the vomiting has ceased after a few days.

Occasionally the slightly bitter burning taste is complained of a little at first, but very soon it will be taken without objection.

The urine usually becomes markedly red where the remedy is pushed, this is due to the antipyrine component of Pyrami-

don and need occasion no uneasiness, usually the red color disappears after a week or so.

So far as I have been able to learn no fatalities have ever been caused by Pyramidon. I have given it continually for five weeks to a delicate child in the adult dose without the slightest harm and with the happiest effect.

No one need hesitate to use Pyramidon because he apprehends it to be a dangerous remedy. Give it as directed and you cannot fail to be pleased with its results.

*FURTHER OBSERVATIONS AS TO THE DIAZO REACTION IN TUBERCULOSIS WITH INTERESTING OBSERVATIONS AS TO RACIAL DIFFERENCES IN WHITES AND BLACKS.

**John Roy Williams, M.D., Hendersonville.

At a meeting of the Medical Congress, 8th District of North Carolina, held at Winston-Salem, January 7th, 1907, I read a paper entitled "The Prognostic Value of the Diazo Reaction in Tuberculosis; with Interesting Observations as to Racial Differences in Whites and Blacks." I reported the first one hundred cases of tuberculosis coming under my care at Greensboro, of which seventy-three were whites, twenty-seven being negroes.

Finding the Diazo Reaction present in 61% of my advanced white cases, failing to find it present in a single instance in my advanced negro cases, it seemed to me there was a distinct racial difference. Of the seventy-three white cases, thirty-nine of them were in the advanced stage, and in twenty-four of them I found the reaction. Of the twenty-seven negro cases, fifteen were in the advanced stage, and in none of them did I find the reaction. These observations suggested to me the question, "does tuberculosis produce the diazo reaction in the urine of the negro; and if not, what is the scientific significance?"

I reported that in the twenty-four white cases giving the reaction, it permanently disappeared in two, with an apparent arrest of the disease under treatment; while twenty-two of them continued to give a persistent reaction, all of which either grew worse or died while under my observation. This seemed to show that the persistent presence of the diazo reaction was an unfavorable prognostic sign in 88.5% of those advanced white cases giving it. According to the literature which has

come to my notice, this seemed to confirm the findings of all other observers.

I reported that I had seen the reaction in the urine of the negro suffering from typhoid fever; and a little investigation has shown me that others have also found it under similar circumstances, showing that there is a possibility of the occurrence of the reaction in the urine of the negro. But, is the chemistry of the diazo reaction the same in typhoid fever and tuberculosis? If it is not, then what is the peculiarity in the negro which accounts for the absence of the reaction due to tuberculosis? In that report, I reached these conclusions, to-wit:

"The absence of the Diazo Reaction in the urine of white tuberculous cases, is a favorable prognostic sign as a rule."

"The persistent presence of the Diazo Reaction in the urine of white tuberculous cases, is an unfavorable prognostic sign as a rule."

"The absence of the Diazo Reaction in the urine of the tuberculosis negro is of no prognostic value."

"There seems to be a racial difference, probably of a chemical nature, which accounts for the absence of the Diazo Reaction in the urine of the tuberculous negro, and for its presence in the advanced cases of tuberculosis in the whites."

I have never seen nor heard of similar observations having been made as to the Diazo Reaction, with possible racial differences in whites and blacks; so that I have no literature to offer you to confirm or disaffirm my observations. The only article I know of that has appeared in the literature in this connection, is one in the Medical Record, March 23rd, 1907, which was written by myself.

I have gone further with my observations, and wish to here report a second hundred cases which have been discharged for sufficient length of time to give accurate figures. They show but slight differences from the first hundred cases as to the presence or absence of the reaction, and no differences as to

the prognostic value. In fact, the observations are so similar in the two series of cases, that they seem to confirm each other. I have still more cases to report, but they have not been discharged for sufficient length of time to give accurate data.

Observers are practically of one opinion in holding the persistent presence of the reaction in tuberculosis to be an unfavorable prognostic sign. I shall not here recite the literature quoted in my first report, as you doubtless have it in your library, and can easily look it up if you are interested. But, as cited in my first report, I have seen the reaction disappear in a few cases with a favorable termination of the disease. Allow me to suggest that it should always be looked for in tuberculosis, for I believe it to be of great assistance in arriving at a more correct prognosis in your cases. You should have a cure, however, in differentiating as to its being due to the existing tuberculosis, or to some concurrent disease from which the patient may at the time be suffering, or has suffered on some previous occasion.

Since reading the paper before the Henderson-Polk County Medical Society, I have had occasion to note the report of Levinson, in the Medical Record, April 1st, 1911, in which he claims that a false reaction is obtained in the urine of those who are taking phenolphthalein; and in which he points out a chemical procedure by which it can be differentiated from the true reaction. I would also cite you to Lafferty, in the Charlotte Medical Journal, March, 1911, in which he writes of some of the chemical substances found in urine at times which are thought to be causative factors in producing the reaction.

It seems unnecessary to go into the technic of the reaction, for it should be well known to you. But in this connection, I beg to quote from my former report, this (to me) very interesting observation:— "A specimen of urine taken from the first passed in the morning, is selected for examination. As soon as possible after its passage, I make the test. If my first test is negative, I allow the urine to stand for twenty-four

hours and again test it. I do this for the reason that on three different occasions, when associated with the Winyah Sanitarium at Asheville, I applied the test to specimens of urine which were still warm with the body heat, and failed to get the diazo reaction; yet allowing the specimens to stand for twenty-four hours and testing again, in each instance I obtained the diazo reaction, which shows that a single test is not reliable."

I shall not attempt to enter into a discussion as to the chemical nature of the reaction, nor as to why it is a prognostic sign. These things are interesting from a scientific standpoint it is true; but at best, we have only theories, which are still unconfirmed and are open to reasonable debate, and are more properly suited to the physiological chemist.

In this, my second report, I am more fortunate in having a large per cent of negro cases than I had in my first. This should add more interest, and be of greater value from a confirmatory standpoint. While I feel satisfied in my own mind that there is a distinct racial difference, and believe that I have already had sufficient number of cases to determine it with more or less degree of certainty, yet I shall continue my observations until I shall have several hundred cases of both whites and blacks upon which to report. And I am of firm belief that my former observations will be confirmed by future ones.

Of my second hundred cases, sixty-one of them were whites, the remaining thirty-nine being negroes. Thirty-one of the white cases were in the advanced stage of the disease, nineteen of which gave the reaction on beginning treatment; two others developing it later, one at the third week, the other at the sixth week, making in all twenty-one white advanced cases giving the reaction, or 70%. There were nine advanced white cases which did not give the reaction, seven of which either improved or had an apparent arrest of the disease, the other two growing worse while under my care. So, of the advanced

white cases which did not give the reaction, there was an improvement or arrest of the disease in 66 2-3% of them. This seems to show the absence of the reaction in white cases to be a favorable prognostic sign.

In one of the white cases of this series, the reaction disappeared at about the end of the fourth week. This patient remained under my care for about seven months and made marked improvement. He left me, going to the West, and I have never heard from him since. But the twenty cases in which the reaction persisted, all grew worse while under my observation. Never once have I seen a case of tuberculosis which gave a persistent reaction, that responded favorable to treatment.

Of the thirty-nine negro cases, twenty-one were in the advanced stage of the disease, in three of which I found the reaction. At first, this seemed to fail to confirm my original observations; but on second thought I reached the conclusion that there is another explanation for it. Two of these negroes had considerable white blood, while the third one seemed, on inspection, to be of unmixed blood, but gave a history of typhoid fever about five months before coming to me. Also, I appreciate that even this case could have had sufficient white blood to create a condition necessary to permit the reaction. Although it did not seem evident on inspection that there was any white blood in this negro, still you know it is more than difficult to get a history of mixed blood from most of them. But, in this case, even in the absence of white blood, the reaction could have been due to a persistence from the previous attack of typhoid fever. All of these three negro cases which gave the reaction, grew worse while under my observation.

Combining the one hundred cases of my first report with the one hundred in this one, we have one hundred and thirty-four cases; of them sixty-nine were in the advanced stage of the disease, of which 65% gave the reaction. We have sixty-six

negro cases, thirty-six of which were in the advanced stage of the disease with but 8% giving the reaction, and the reaction in these instances being of a doubtful origin. If there be no racial difference, and the reaction being present in 65% of the advanced white cases, then we might have expected it to be present in at least twenty-three of the advanced negro cases. Leaving aside the assumption that the reaction does not occur in the full-blooded negro, then why did it not occur more often than it did in these cases here reported?

I am strongly inclined to believe that tuberculosis does not produce the diazo reaction in the urine of the full-blooded negro. But, given a case of tuberculosis in a negro of mixed blood, the reaction may occur; and as in the three instances here reported, it is an unfavorable prognostic sign.

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*Read before the Henderson-Polk County Medical Society, April 4th, 1911.

**Formerly of Greensboro, North Carolina.

SOME OBSERVATIONS AND CONCLUSIONS FORMED DURING AN EXPERIENCE OF TEN YEARS IN TREATING OPIUM AND ALCOHOLIC HABITUES.

S. M. Crowell, M.D., Proprietor Crowell Sanatorium, Charlotte.

About ten years ago when I first opened my Sanatorium in this city, with the exception of Keeley Institute, there was no other Institution of this nature in the entire country, perhaps, for the one reason that the habitual use of Whiskey and narcotic drugs was regarded, generally speaking, as wilful, malicious habits, abandonable at will rather than universally recognized diseases, or manifestations thereof, as is the case at present.

In the face of the above facts, you may imagine how very discouraging it was to enter upon this special line of work, especially when advised adversely by intimate friends and associates with the additional advice to enter other fields of work, one brother going so far as to say: "Go West young man; a prophet is honored save in his own country.

However, after some months of writing, talking, reading papers and advertising, I succeeded in attracting the attention of a few people, and treating successfully a few Opium and Alcoholic cases—(semi-charity, of course).

This seems to have been the proper psychological period to agitate this subject for since that time, these conditions have become looked upon as deserving room in our text-books, and more than *casually* referred to by the Professors in our best Medical schools.

I remember very distinctly when the lamented, and *renowned* Prof. I. E. Atkinson of the University of Maryland, lectured to the members of my class on these subjects that so little importance was given them that the boys were but little concerned,

perhaps being more interested in throwing snow balls or other missels at old black John's kinky head (notwithstanding the fact that Prof. Atkinson was one of the most polished and magnetic lecturers I ever heard) than this particular lecture, and to the best of my knowledge, not over fifteen minutes were consumed in the entire subject, whereas now several hours are spent in the subject of Inebriety in our best medical institutions.

Of the three universal methods referred to in our text books, I have always preferred the Radical method, or Sudden withdrawal, in the treatment of either alcoholic or drug habituation. In a very few old and debilitated patients I have used the rapid Slow reduction method however, believe that I would have gotten just as good results had I used the Radical method. In fact, the Gradual reduction methods are neither rational nor practical. The key-note of success in all these cases depends upon two factors, these being first, a *very thorough Elimination and support during withdrawal period,* and secondly, Suggestion, scientifically applied.

The elimination of all effete material may be effected through the alimentary tract, the kidneys, skin, and to a small degree, the lungs. This is easily accomplished by such agents, in *proper* doses for a *benumbed* system, as will duly stimulate the normal eliminative organs and functions of the above routes.

As to the second, or *Suggestive* factor, I will say that this simply means *confidence,* i.e., the patient must have *implicit* confidence in the physician and nurses in charge, and the more *apt* they are in the application of this science, the more potent the agent.

It seems *improbable* to *me* that one could possibly secure the essential elimination when using *either* the Gradual reduction methods for as a portion of the toxines are eliminated, more is being introduced into the system by keeping up the original alcohol or drug, for when either is used, there will be nausea, vomiting, diarrhœa; often dysentery, portal stasis, excessive sweating, insomnia, and dreams, experienced by none, save the

followers of Somnos and Morpheus, and tolerated by no other than those in similar bonds.

While elimination is taking place, certain cardiac stimulants and tonics must be used to overcome the portal resistance and suffice for the abandoned drug, and at the same time, certain sedatives should be employed. For the former, I know of nothing better than sparteine sulphate, hypodermatically, in doses from ½-2 gr. every 4-6 hours as long as indicated. Strychnine is NOT so good.

As to the Sedative. Formerly I used Hyoscine Hydrobromide, however, abandoned it for the better cerebral and motor sedative, Scopolomine Hydrobromide. The Hyoscine seems to act more as a motor *stimulant* in the *doses essential,* and proved unpleasant and objectionable to the patient, for we nearly always had to push the dosage to the point of delusions and hallucinations.

In giving the Scopolamine, I always begin with the minimum dose, say anywhere from gr. 1-500-1-200, and repeat at intervals sufficient to keep the patient quiet, increasing the amount if necessary. I keep up the administration till the elimination is well started up which takes anywhere from 48-72 hours, when it is abandoned. Of course the above size doses are only arbitrary as every person is a law unto himself, hence, this is a knowledge that must be acquired by a long experience. With a good elimination and the proper administration of these agents above enumerated, all Morphine patients can be cured without the *pain* so much written about and dreaded so intensely by the average habitue. But please do not understand me to say that Scopolomine nor Hyoscine either are specific for the cure of the Morphine habit, for such is NOT so. I mention this fact because there seems prevalent an idea that they are specifics, and this idea is not confined to the laiety either.

In all cases of Inebriety, and especially those of Morphinism, the nerve cells are very much impoverished, hence, the patient's nervous system is unstable and highly exciteable,

however, this is soon overcome by proper feeding, baths, static electricity, proper exercises and surroundings. One of the greatest drawbacks in the treatment of these cases is the patients inevitable propensity to leave the Sanatorium before he is cured, thus increasing the possibility of a relapse when back in previous occupation, environment, etc. The average habitue should be under observation *weeks* and *months* instead of a few days as has been customary in the past.

This naturally brings us to the point of the many, many, so-called "Three Days," "Slip-in-Your-Husband's Coffee Cures," "Home Cures," etc., an opinion of which I am occassionally asked to render, even by members of the medical profession, and this is my apology for even *referring* to these accursed methods of distorting money from the unsuspecting habitues, who like drowning men, grasp at even the *semblance* of rescue. They are all unethical, nonscientific, nefarious and should be eradicated by suitable legal recourse, and their promoters treated as other unscupulous and dangerous men.

I have only the greatest sympathy for the poor Inebriates thus deluded, and can speculate as to how the promoter might "harden his heart and stiffen his neck" in thus swindling them for the sake of a little money, but I can not, *to save my life,* understand why any practicing *physician* could think of paying this Quack a royalty on his formula for the *privilege* of administering it to his patients, and I regret to say that recently, I have had such to come under my observation.

In reference to the question, how does "So-and-So," in *three or four days time,* cure Alcoholic Inebriety, will say that this is preposterous. Such promoters and pretended philanthropists and humanitarians deal first with the normal good fellow, who occasionally gets drunk and wishes to get sober quickly to accept a good position tendered on condition—or to keep from loosing one. This man still retains his will power, hence is not an Inebriate, and has this, plus the hope of reward to induce him to "sober-up." The other class is the lower element

—the chain gang candidate—who, as a rule, is very susceptible to "suggestions," and this combined with several C. C. pills, is very effective in eliminating the "craving" for whiskey, and as this poor fellow has the stern law behind him, threatening to inflict the chain-gang penalty in the case of a "relapse," it is very natural for him to exert every effort and proclaim himself cured, and so remain. Neither is he an Inebriate. There is a great difference in the "Inebriate"—the sick man—and the "drinking man"—the one who is not yet diseases.

As to the prognosis, in the cases treated in a scientific manner, I will say that *all* alcoholic and drug patients are amenable to treatment, and that there is no more reason for a "relapse" than there is for reinfection in malaria. Whenever such is the case, it is no more fault of the treatment than in the case of the malaria.

Now, as to what class of people is most effected, it is rather difficult to determine. However, my observation has been that no class nor condition in life is exempt. Of course the public sees more of drinking and drug using among what we usually term the "common class," because we see more of this element as they can not be so seclusive in their habits and misfortunes as the better class.

How and Why Do People Become Habitues? In the first place, will say that perhaps, some become so the more readily because of the influence of an hereditary diathesis. (However, I do not mean that it is hereditary by any means).

Among men, I believe that the majority become drug habitues from the excessive use of whiskey; of course, a certain per cent. resulting from the incipient, legitimate use of Morphine in pain, as from appendicitis, gall-stone, etc.

Among women, the majority result from the primary use of opium in pain, those of the "red light" districts being excepted, these becoming addictees from dissipation, evil association, and the strenuous life in general.

In my experience I've treated a great many physicians, and

I find that they are *human* just like other people, and practically the same factors operate to render them habitues as in the above cases, perhaps their familiarity with the hypodermic syringe and the physiologic effect of opium rendering them somewhat more surely susceptible and certainly victims.

At every opportunity I reiterate my firm convictions that each municipality, County or State should maintain an institution for the treatment of its worthy, indigent Inebriates for there are hundreds of such in every commonwealth and they are increasing in number each year, and many are worth the effort to save them.

Dr. Kebler, the United States Chemist of Washington, D. C., asserts that there are anywhere from 1 to 4 million habitues in the United States as all kinds of drugs and compounds are being used indiscriminately, even many mothers making addicts of the babes at their breast by foolishly giving them various kinds of concoctions—as for example, Mrs. Winslow's Soothing Syrup, Dr. Miller's Anodyne, Dr. Bull's Cough Syrup, and many other compounds as numerous and pestiferous as the pests following Pharaoh's army. Dr. Kebler says "it is hardly believable that any one, for the sake of a few dollars, would concoct for infants' use, pernicious mixtures containing cocain, etc., but several such mixtures have been found during the last couple of years. One was offered for importation, under the name of Epsey's Syrup for Children's Dentition, which contained one-half grain of cocaine hydrochloride to each bottle of about an ounce."

Cocaine has been used for only about twenty-five years, however, the amount consumed at present in the United States is said to be approximately 150,000 ounces per annum, and I believe this amount will not cover the aggregate consumed for the negro, in imitating his white neighbor, is using it as a "sniffing" powder in great quantities, and it is difficult to ascertain just the amount he uses. At any rate, it is making the worst class of criminals of this particular race. When our

most henious crimes are perpetrated, as a rule, same is instigated by the use of cocaine by this race.

It has been less than 70 years since the famous "opium war" between England and China—very much to the British Empire's discredit—yet, every school boy is familiar with the curse under which China is laboring today as a result of her defeat in that struggle.

With China's warning-example, and our own country threatened in a similar manner, then, it is time for us to make and enforce appropriate laws along this line and provide for the Inebriates already on hand.

We are caring for other unfortunates, most worthily, however we can and should give State aid to the worthy Inebriates, many of whom would make us most valuable citizens in the future if properly treated and cared for by the State. Right at this point, I wish to pay tribute to our noble citizen, statesman, editor and big-hearted gentleman, the Hon. Joseph P. Caldwell, editor Charlotte Observer, and Chairman Board of Trustees of the Western North Carolina Hospital, who, 20 odd years ago, in his long foresightedness, conceived the idea and materialized the plan of having the indigent Inebriates admitted to a separate department of the above institution for treatment. It worked most successfully—however, for the lack of funds and room these were later denied admission by a subsequent legislature and Board of Trustees. Of course the primary, hardened criminal habitue should have due consideration and adequate care.

In reading almost and daily paper—church or secular—it is a very common thing to see some of the Quacks, or owners of the "get-well-quick" cures referred to in this paper advertising in a very elaborate manner, having for their references certain ex-governors, ministers of the gospel and ward politicians "galore." Why so, only they and an all-wise God know, but it is having a most baneful effect for many of these unsuspecting men and women, having all confidence in the standing that such men should have, are thus duped and robbed of their scant and hard-earned savings.

THE DYSPEPSIA OF HEART DISEASE AND ITS DIETETIC TREATMENT

A. W. Galloway, M.D., Asheville.

Until there is some cardiac insufficiency the function of the stomach is only slightly disturbed. In compensated heart cases the acidity of the stomach seems to depend upon the temperament of the individual rather than any influence exerted upon the heart. When the heart commences to weaken the portal system engorges correspondingly and the digestive tract thereby suffers. The postmortem findings of the stomach from cardiac failure, are as follows:

The walls are thickened and the inner surface is purple and covered with tenacious mucous, the rugae are increased in size and the mucous membrane is studded with small hemorrhages. Occasionally may be seen anti-mortem digestion of these infiltrated areas which gives rise to ulcers. This is the end picture of a progressive gastric incapacity. In the course of this propressive disturbance we could expect various grades of digestive ability. Soon after the engorgement a catarrhal condition supervenes upon the mucosa and then we have symptoms of indigestion. The acidity usually declines with the aggravation of the second condition. In advanced cases the motility of the stomach is impaired, its absorption limited and stagnation of food occurs. Under these circumstances we have fermentation and the formation of a diacetic acid, the presence of which denotes the advance of anorexia and gastric intolerance.

There is a diminished power of absorption of fats in heart disease due to high venous pressure, preventing the thoracic duct from emptying itself, and it has been shown that a high portal pressure causes the lymphatics of the intestines to collapse. The engorgement of the veins may result in hemorrhage with hematemesis.

Symptoms: In compensation, patients usually have a feeling of oppression in the chest and flatulence after meals, which becomes more severe as the heart undergoes dilatation. In excessive distention of the stomach and intestines the heart is displaced upward and horizontally which causes faintness and even fatal syncope. There may be violent palpitation after meals and with it giddiness and irregularity of the pulse. In advanced cases the appetite is lost and there is a loathing of food. As we might imagine this symptom is an omen of the not far distant end, as it means starvation which adds to the all ready failing heart. Vomiting may be present in severe cases. Giddiness and insomnia usually occur in them. The stools may contain an excess of fat. Pain in the region of the liver usually occurs as the result of failing compensation and the organ becomes somewhat enlarged. There may also be abdominal pain from sclerosis of the gastric and mesenteric arteries. Catarrhal jaundice may also accompany the failure of the heart. It is usually very slight. The presence of it should always indicate cardiac insufficiency.

Diet:— Hirschfelder says (1) "Rest for the gastro-intestinal tract is quite as important for the heart as for the muscles." It is well determined that the pulse rate and pulse pressure becomes increased and the heart directly influenced after meals. When compensation is complete, the diet need only be regulated by the general rules. Since purin bodies and tea, coffee and alcohol raise the blood pressure, they must be limited if used at all. An interval of at least five hours should be allowed between meals in order to give the stomach time to empty itself. Especially is this desirable in cases of impaired motility when stagnation is evidenced by flatulency and dyspnea. The principal meal should be at midday and the lightest at evening. Such indigestible food, as given below, must not be taken.

Rich soups or chowders, veal, pork, stews, turkey, gravies, fried foods, liver, kidney, potted, corned or cured meats;

salted, smoked or preserved fish; goose, duck, sausage, crabs, lobster, salmon, pies, pastry, candies, ice cream, cheese, nuts, ice water, malt or spirituous liquors.

The quantity of liquid should be restricted to some extent because an excess of it would distend the vessels and raise the arterial tension. As a rule the quantity of liquid must be decreased in proportion to the decrease in quantity of urine. At the same time it must be borne in mind that enough liquid must be allowed to circulate in order to carry off the impure, irritating end products which are harmful to the blood. Since the distention of the stomach may cause mechanical embarrassment, it is necessary that the meals never be heavy and should be made up of the foods which are least likely to ferment; such as: Milk, eggs, toast, zwieback, and the various cereals. If the case becomes worse the diet must be further restricted and should anasarca supervene one may advocate a diet of but eight hundred c. c. of milk in twenty-four hours, or make use of the dry diet. Generally speaking where there is edema, the liquids must be limited to fifteen hundred c. c. Several men of authority find that the reduction of salt will be followed by a decrease in the edema. All authors restrict or forbid the use of tobacco and most of them, tea and coffee except in a very mild manner. In regard to the use of alcoholic beverages, the best of medical authority and experience is against their use.

Friedenwald has this to say, (2) "If owing to the general weakness of the patient its use is indicated it should be given in small quantities and in the form of whiskey or brandy well diluted, wine and beer are contra-indicated." Hirschefelder states, (3) "It is a safe rule that in persons not already addicted to its use, brandy or whiskey should be given in doses which serve as carminatives, and not in doses intended for stimulation. It should be reserved for crises when the stimulation of every fibre is all important. On the other hand alco-

hol should never be withdrawn suddenly from persons addicted to its use."

In consideration of the fact which high blood pressure may play in heart disease, we will add its dietetic treatment separately. It may best be given after the plan of George Oliver, (4) which is as follows:

The cardinal aims are (a) to reduce the bulk and number of meals; (b) to exclude or lessen red meats, especially when roasted, and to avoid meat extractives, such as soups and gravies; (c) to give freely vegetable-derived foods (fruits, green vegetables and farinacae) and the non-nitrogenous articles of diet. Butcher's meat is injurious in three possible ways: first, the cardio-vascular stimulation from the extractives; second, increased intestinal putrefaction; third, the increase in nitrogen produces toxemia. Boiled meats are preferable because boiling removes the extractives. Salt taken above 100 grs., a day is a circulatory stimulant and increases the lymph flow with resulting concentration of the blood. This increases its viscosity and in that manner arterial blood-pressure is raised.

It is often advisable when the blood-pressure is high to give a salt free diet for a fortnight. This consists of vegetables, fruits, nuts, fats (fresh butter and cream), salt-free bread, farinacea (potatoes, rice, peas) and sugar. A pure milk diet of five or six pints daily is often very useful in high pressure. Buttermilk made from skimmed milk may be an improvement over either pure or skimmed milk. Coffee, tea and alcohol should be limited and in certain cases excluded. Tobacco must be given up. Should flatulence and dyspepsia intervene, certain modifications or combinations of the above must be given.

To summarize:— The dietetic treatment of heart disease is based upon the following pathological factors:

1—Impairment of the portal circulation with its consequent digestive disturbances.

2—Diminished absorption of fats.

3—Reduced motor function of the stomach and intestines

with food stagnation, fermentation, anorexia and finally gastric intolerance.

6—High blood-pressure in certain cases.

7—Viscosity of blood.

It is possible as has been briefly outlined in this paper to allow a diet which gives the greatest nutrition to the patient with least possible tax upon his system. By recognizing the heretofore named factors and by carefully adapting suitable food, we are justified in conclusion by saying that there is a scientific selection of food in heart disease which appeals to our common sense.

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THE MORALS AND SNARES OF THE MEDICAL PROFESSION.

A. B. Croom, M.D., Maxton.

In order that a profession may become great or remain great after having become so, it is wise, important, and absolutely necessary that the members thereof shall be occasionally reminded of two points: First, what we hope to be or have already attained and second, what we must not be or do: in other words, the evils which beset us.

As to the moral standing of our profession, there can be no doubt that our noble predecessors have not only set a very high ideal but have also lived up to the same: that they have set for us noble examples worthy of following.

Going back into the history of medicine we find men of character and influence who, notwithstanding their limited knowledge, were searchers after the truth and distributers of good things to suffering humanity.

In more recent years our fathers and grandfathers have maintained this high standard and handed down to us a responsibility which in the light of recent discoveries and development is even greater than heretofore.

And now, in this day of rush and push in the business world, when the lines of competition and commercialism are tightly drawn, would it not seem proper to recall, discuss, and enlarge upon the morals of the Medical Man?

He is a man of honour and integrity who knows how to live a pure and upright life and withstand evil influences.

He is ever mindful of his fraternal relations with members of his profession and his duty and obligations to the world and ecpecially to his fellow men when overtaken by disease.

He stands for all that is best in his community.

He is a gentleman. He has entered his professional career

with a full knowledge of the personal deprivation and after a few years practice he has learned the art of a happy life—that of living for the welfare and happiness of others: for after all how much is to be gained from a few years in this short life by a man of selfishness, who thinks always of self and never of the service he may render to his fellow man nor the impressions for good to be left on the world when his bones are resting beneath the ground?

The man of high ideals in our profession, therefore, is the man who is ever mindful that "The evil that men do lives after them; the good is often interred, with their bones." And with this fixed in his mind will "Cease to do evil and learn to do well."

The medical man of high morals should also remember some obligations to himself and his family and look sufficiently to his own interests to preserve his own life and health that he may live a longer and more useful life, and see to it that his family will be provided for when he is gone.

No man is able to do it all and in attempting to monopolize the work of his community he not only overworks himself and soon finds that his health is gone; but that in his efforts to utterly ignore the other members of the profession he has so neglected his patients that his class of work is no longer worthy of patronage and that the other fellow who has been steadily at work rendering at all times the best class of service, now has his practice.

Remember, therefore, to do good work rather than much work. And now as to the snares into which the medical man is liable to fall unless he is constantly on his guard.

The very close and intimate relationship which exists between family physician and the family which he serves furnishes opportunity for good or bad, and in many cases almost at the discretion of the physician himself; and the man who steps for one moment from his high position and looses sight of his professional obligations will realize at once that

he is no more than a human being and that many weaknesses exist among many people. It is therefore, of utmost importance that this confidence should *never* be abused and that such opportunities should never be lost to employ this influence for good.

In order that a man may be what his profession demands he should, in addition to being well born and thoroughly educated not only in his profession, but in a general way also, and especially in a moral sense; be a man of fine convictions and a strict sense of honor and duty; he should live strictly in accordance with the strictest code of ethics and with a fixed determination to do right at any cost.

It is highly necessary that he be fair and honest with all men and even more than fair with his brother in the same field of work. How many are the opportunities of the doctor to extensively and perhaps permanently injure his doctor friend and brother by some slighting remark or it may be a moment of silence when his better senses indicate a duty to speak in his defence.

How often do we find a physician speaking of his "competitors," his "rivals," etc., when in reality he should scorn the very words with reference to his professional brothers.

Do you hear the Ministers of the Gospel using such terms with reference to others in their field of work?

And if this is true should we be satisfied to allow any set of men to have higher ideals than ours?

I maintain without hesitancy that there is no profession, trade, or a vocation which deserves better material and whose ideals should be higher than that of the medical profession.

The temptations are numerous when a commercial view is taken of our work.

One man sees another walk in and take his patients and it may be by unfair means and he asks himself if the profession is really what it claims to be.

He wonders if he can afford to allow these things to continue.

Then it is that the medical man encounters a snare—that of retaliation, which is most detrimental to his personal interests.

As long as this man is recognized as his professional brother he is under obligations to regard him with a fraternal spirit and when he begins to retaliate he himself is no longer on that high plane, but has stooped to methods unbecoming the profession which he represents and subjects himself to the same criticism he would render the other man.

And now in conclusion, may I offer a plan for a thoroughly united effort on the part of the medical profession for the highest type of moral standard and a persistent fight against the snares to which we are liable?

May we not be a perfectly united fraternity, thoroughly conscious of obligations to the world and our fellowman: but above all not loosing sight of duties one to another and thus accomplish more real good in the world and attain thereby much personal happiness.

THE NATIONAL FORMULARY.

ROBERT L. FELTS, M.D., DURHAM

It is not the intention of this paper to advocate the use of the National Formulary preparations to the exclusion of prescriptions written at the bed side to meet the indications presented by individual cases, to which preference should be given in all cases, but the object is to encourage the use of the preparations of the U. S. Pharmacopoeia and National Formulary in preference to the proprietaries and secret nostrums.

It must be admitted that during the past twenty-five years, legitimate pharmacy has been grossly neglected by the medical profession and scientific therapeutics has been to a great extent supplanted by a rather indifferent method of prescribing ready-made preparations without any clear knowledge of their composition, therapeutic action or dosage, and without taking into consideration the individual patient. This is not always done through ignorance, but often through motives of convenience and haste.

It is gratifying to note that this fact has come to be generally recognized and a decided reform movement has been brought about during the past few years, chiefly through the efforts of a number of individual members of the American Medical Association, the work of the Council on Pharmacy and Chemistry, and of the Council on Medical Education, and of the passage of the National Food and Drugs Act, this Act having raised the National Formulary to the position of an official standard giving it a significance and importance which previously it could not claim.

In order to meet the requirements of the new function of this book, the American Pharmaceutical Association at one of its late meetings, invited the Section on Pharmacology and Therapeutics of the American Medical Association to co-

operate in the revision, and a committee of five members was appointed. This should cause an increased interest and a more thorough study of the book by the medical profession, in order that Therapeutics should be guarded as well as pharmacy in the revision.

The usefulness of the National Formulary to the medical profession will depend on the degree in which it reflects the best tendency in modern prescribing. The National Formulary seems to contain a good many useless drugs and mixtures that are more or less imitations of some of the popular proprietaries. The cure for this defect will depend largely on the active interest of the medical profession, as the National Formulary Committee has always endeavored to place in the book the preparations desired by physicians. Even if there are a few minor defects in the National Formulary, there are many good reasons why its preparations should be used in preference to the proprietaries and secret nostrums.

1st. The preparations have been brought to a common authoritative standard, and there can be no legally permissible deviation from the formulae when such preparations are ordered, thereby ensuring accuracy and uniformity in dosage and therapeutic effect.

2. The majority of the proprietary preparations and secret formulae are mixtures or compounds of drugs and preparations as found in the U. S. Pharmacopoeia and National Formulary, and could be easily prepared by any experienced pharmacist, making it unnecessary for him to have his shelves laden with so many preparations of different names, but of almost identical compensation.

3. The use of Pharmacopoeial and National Formulary preparations will stimulate a zeal for advanced pharmacologic and therapeutic attainments that is now shown in all other departments of medical and surgical practice and it will revive an interest and skill in the art of compounding and dispensing, on the part of the retail pharmacist.

4. With a total of more than 1,300 drugs and combinations of drugs in the U. S. Pharmacopoeia and National Formulary and a few of the non-official remedies, approved by the Council on Pharmacy and Chemistry, it certainly appears that we have a sufficient armamentarium for the medicinal treatment of disease.

5. The use of these preparations will discourage the vicious and widely spread habit of self medication which is encouraged by the easy familiarity the public acquires of the proprietaries when they are so extensively prescribed by physicians and offered for sale over the counter of the retail druggist. The return to rational therapeutics must depend upon a thorough knowledge of what the U. S. Pharmacopoeia and National Formulary contain. Materia Medica and Pharmacology should be more efficiently taught in the medical schools and the importance of the Pharmacopoeia as a book of reference should be insisted upon, and the physician should continue to apply himself closely to the study of the preparations of the U. S. Pharmacopoeia and National Formulary, and their therapeutic effects.

As a means of further familiarizing physicians with the preparations, joint meetings between local societies of pharmacists and physicians is desirable and should be encouraged The experienced pharmacist and physician can each render good service to the profession of the other by hearty co-operation in establishing a more ethical practice of the art of pharmacy.

The final result of the movement which is now seeking to abandon, indefinite and variable preparations must result in a more rational and efficient therapy.

MICROSCOPY IN MEDICINE.

ROBT. H. LEFFERTY, M.D., CHARLOTTE.

The use of the microscope in medicine has become so important and widespread, the advancement of the science due to its use has been so apparent, its influence on medicine in its every phase and its value to the practitioner in every department has been of such magnitude and these facts are so universally recognized that to choose this subject seems almost an imposition upon your time. But sometimes even the most trite sayings or a discussion of a well known subject will stimulate thought that amounts to something great and so I would like to occupy a few moments of your time as a sort of introduction to the papers of the section on Pathology and Microscopy by a brief glance at some of the development due to the microscope.

No one, upon sane and careful thought, will deny that the majority of the great progressive steps in medicine may be attributed to the use of the microscope. Osler says "its use in clinical work widened greatly our power of diagnosis and we obtain thereby a much clearer conception of the actual progress of disease." Another writer says: "A complete revolution in medicine was begun in the later half of the 19th century and the credit is due to Pasteur, Lister, Virchow, Morton and others, but Virchow himself maintained that Pasteur was greatest of them all," and every one knows what the microscope meant to his work as well as to the work of others.

In the field of Etiology, Sanitation, Hygiene, Diagnosis and Treatment it is absolutely indespensable and of a value that cannot be overestimated.

The microscope made possible Virchow's research on the Cellular Pathology "which removed the seat of disease from the tissues, as taught by Bichat, to the individual elements, the

cell." It made possible the brilliant work of Pasteur to whose memory grateful Paris erected a splendid monument of marble but whose work is immortalized by the countless lives saved each day as a result of his work. It made possible the work of Lister, of Koch, of Ehrlich and of myriads of other masters in the various departments of science.

A comparative study of the etiology of disease as set forth in medical literature of 75 years ago with the etiology of today shows many interesting changes most of which are traceable to work done by the microscope. For example, in one of the old books I read "it seems pretty certain that marsh miasma or effluvia rising from stagnant water or marshy ground when acted on by heat are most frequently the exciting cause of intermittent fever." The modern writer says; "It is due to a hyalin and intercorpuscular parasite called plasmodium malaria." Without the microscope this would not have been known, and we would be sadly handicapped in the diagnosis of malaria.

These older books tell us that continued fevers were attributed to the same causes and in addition to a lowered vitatity caused by work, worry or fatigue and also to a miasma rising from the people who are sick and from dirt that has been found near the sick people. This even in its remoteness is wonderfully near to our present theory, but it remained for the bacteriologist to find that the mosquito carried the malarial parasite and that typhoid fever was due to a micro-organism which was carried from person to person.

Many other very interesting differences are noted in the various diseases. All diseases of inflammatory nature were attributed to injury and cold; no attempt was made to give the cause of mumps; diphtheria was said to be due to humidity of the atmosphere; syphilis to contact; tetanus by exposure; cancer was an ulceration due to excessive or prolonged injury.

It is a very significant fact that in these old text books the class of diseases known as infectious which now occupies such

a large place in our modern books was entirely absent. At Pasteur's last birthday celebration Lister thus addressed him: "You have raised the veil which for centuries had covered infectious diseases; you have discovered and demonstrated their microbic nature" which remark shows where this great man placed the credit.

It is also interesting to note how during the last fifty years the number of infectious diseases in each successive edition has increased by diseases of unknown cause being gradually shifted to those of infectious nature and this change was due to the discovery of the cause by the microscopist. Then, having found the cause we know from many instances how the diagnosis treatment and prevention have rapidly followed until, in not a few cases, diseases have been practically stamped out or the death rate brought to a minimum.

And what shall we say of the progress in Surgery? We shudder when we think of the absence of surgical cleanliness in the old operations. We hear with horror of the numberless infected wounds; we are astonished at the lack of cleanliness in the army surgery of our remote wars and even more at the success attending the operations. But we see the surgeons of today doing a laparotomy, craniotomy or other major operations with a degree of safety far exceeding that with which the older surgeons did the minor or most trivial operation. We see the surgeon stop during an operation for tumor while the pathologist makes the examination of the section to ascertain with what class of tumor the operator has to deal, so that he may know how extensive his operation must be. What but the microscope could have brought about this revolution? Lister acknowledged that his great work could not have been had not Pasteur preceeded him with his work in Bacteriology. Or we ask, how could the Pathologist determine the nature of tumors without this valuable instrument?

In Obstetrics the bare mention of the discovery of the cause of puerperal infection, opthalmia neonatorium, and tetanus and

the indicated means of prevention and treatment is sufficient to score another triumph for Bacteriology. The countless lives of mothers and children that have been saved by the prevention of these troubles pay a well merited tribute to the microscope.

When we turn to the field of hygiene and sanitation we find most wonderful results. Here we see the microscopist has determined the causes of disease, their sources and means for their prevention. He instructs the sanitarian to destroy the mosquito or keep him away from man, to destroy the fly or keep him away from infected soil and from man and the food of man; to isolate contagious diseases; to inforce care in handling and disinfecting excrementa from patients with communicable diseases; with the result that thousands of lives are saved, much suffering avoided, and certain diseases are gradually being stamped out.

In the work of diagnosis, however, the microscope becomes the practitioner's most valuable instrument. How could he do without it in the diagnosis of intestinal parasites, of malaria, of tuberculosis, or of typhoid fever, to say nothing of tumors, syphilis and many other diseases diagnosed either directly by its use, or using it to eliminate other diseases. There is no more spectacular sight in microscopy than to see the pathologist as he mounts and stains a small section of the brain of the dog supposed to be rabid, and demonstrate there those bodies of Negri which indicate that treatment is needed by the patient bitten by the dog. How many lives have been saved by this simple process could not be estimated.

In your blood counts, examinations of blood smears, of urinary sediments, of gastric contents and of various other secretions, excretions, and fluids of the body, the microscope is such a valuable asset to the diagnostician that no man can afford to disregard it.

Then finally in the field of treatment aside from the fact that it has afforded the means of knowing what to treat, there

are many of our most valuable means of treatment that are due absolutely to the microscope. Had Ehrlich been deprived of it he would never have hit upon that wonderful chain of reasoning by which he found his 606, nor would he have had means of demonstrating the presence and destruction of the spirochaeta pallada.

Without the microscope the Diphtheria Bacillus would not have been discovered and its anti-toxin made and the lives of countless children spared. Without it the Typhoid vaccine would not have been brought into use, untold sickness, suffering and death spared our soldiers, and those who have resorted to its use.

And finally without it the entire field of serum-therapy and diagnosis would never have been thrown open to the doctor and much that has already been accomplished and triumphs that may still be attained would not have been. The treatment of bacterial diseases by specific innoculation has established a system of therapeutics which could have had its origin nowhere else save in the microscope.

So we have seen that as a means of developing and making accurately scientific the study of medicine, the microscope has filled a place all its own and this work will continue. But of especial interest to us is its value to every one of us every day and the doctor who does not possess this instrument and cannot use it or is not within the reach of someone who can, is indeed to be commiserated and we rejoice that today our schools are emphasizing its use, our doctors employing its methods or calling the specialist who does this work for them, and finally that even those busy doctors who have neither the time nor equipment to do this work need not leave it undone for the state has established a laboratory in which this work is attended to by specialists.

POSSIBILITIES OF PREVENTIVE MEDICINE.

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This is one of the foremost propositions of the age. And it is fitting and well that it should be. With the astounding facts relative to the subject before us, it is almost impossible for one to keep quiet about the matter. Revolutions have been born of conditions far less aggravating than are the present conditions relative to disease. Over one and a half millions of our citizens are sick all the time of preventable diseases and over a half million dying every year needlessly of these same causes. Where would you find greater justifications for revolutions and war? Our land is being pillaged and our people slain. To Arms my Countrymen! To Arms! and at the enemy now. Lives there a soul so sordid and dead that a widow's tears and her orphans' wail could not warm it? On such a one we do not call. But into the ears of strong men, live fighting men, would we pour the story of our country's afflictions. There are very few, outside the medical profession, who know and appreciate these stupenduous facts. It will take repeated, persistent and well directed efforts to awake the citizenship of our State to the full importance of this matter. Though our work, as modern medical men, is almost wholly confined to the treatment of diseases, we are bound to take time to interest the public in the vast work of disease preventive. We, as practicing physicians, can never carry to completion the instruction of the public, while going about our daily work. We can help to mould public opinion, and eventually, happily that event is not far in the future, this public opinion will permit and even demand the legislation which will result in the training of the masses and enforce the execution of wise measures directed along the line of disease prevention and the conservation of human life. But I want to state emphatically that we, as phy-

sicians and surgeons, can never do the complete work as it must be done along this line. There must be a regular standing army in the state, paid by the state, counties, and municipalities. This health army must have no other duty and do no other work beside prevent disease and conserve human life by every means known to this modern and most glorious of all earthly armies. Glorious in its achievements and in the patriotism and fighting qualities of its personnel. It will make no widows and orphan no children, demand no pensions and produce no treasury deficits. Its splendid work will be the prevention of disease and turning the death angel from our homes. With 600,000 deaths from preventable diseases, in the United States every year, our proportion in North Carolina would be in excess of 10,000. Accepting Prof. Irving Fisher's conservative estimate as to the money value of a human being, our annual loss from death to say nothing of the loss from sickness, when death does not follow, is over $20,000,000. every year from diseases which are almost wholly preventable. 10% of the loss would yield $2,000,000, a sum amply sufficient to provide every means of prevention needed and maintain all the health officers required for this all-important work. If two millions, which is a great amount for North Carolina to spend, you must not forget that it is significant when it is compared to the valuable interests it is proposed to be used in the protection and defense of. And the money must be appropriated. There is too much at stake for us to look back or stop and count the cost. Let us make no apology but as patriotic citizens it is encumbent upon the medical profession that we point out to our people the possibilities along the line of disease prevention. Tuberculosis is a preventable disease and its prevention alone is worth millions to North Carolina. Yet the same agency used to instruct and protect our people against the great white plague can at the same time carry on the work against typhoid, malaria and hookworm disease and other death dealing diseases. It seems a pity that there is not some one who

could speak with the voice of thunder and arouse our state to its tremendous possibilities. The achievements of our army medical men at the present time on the Mexican border are so splendid that they must attract the attention of all the civilized world. The almost absolute prevention of Typhoid and dysenteries, under war conditions, when nearly 20,000 men are camping, has never in the previous history of the world been accomplished under anything like the conditions under which our border army exists today. No cases of Typhoid in the army on the Mexican border, makes a splendid showing when compared with conditions 12 years ago when there were over 20,000 cases in our army which was operating against Spain. 90% of the recruits collected at Chickamauga developed typhoid within eight weeks after they arrived there. Think of such conditions and contrast them with what we have to do on the Mexican border. It is difficult to credit the accuracy of such statements but they are from the War Department and beyond dispute. What has been done in military life and at Panama and in Cuba and Porto Rico can and shall be done in civil life and for the greatest people on earth, right here in North Carolina. Did our state and national governments not fall short of their plain duty in the way of preservation of public health. We should find here at home records of as beneficent achievements as those we get from distant lands and our own people would reap the full benefit of that ever advancing knowledge of diseases and its prevention which carries its message of hope to minkind. The health of the people is the greatest asset of the state and according to every dictate of reason should be the matter to receive first consideration at the hands of our state and national legislatures. All philanthropic, state and private expenditure directed to the relief of sickness and suffering due to preventable disease in the individual, even though at present commendable and necessary, represent a tremendous waste. The appropriations for hospitals and sanitoriums for the care of individuals suffering

from preventable diseases when weighed against prevention really constitute a waste. The prevention of disease may never be carried to perfection but medicine itself is not an exact science. Yet in both we are surely making rapid progress. The medical profession stands consecrated to the broadest and most effective altruism and its efforts are directed not only to lengthen but to broaden and to make happier the span of human life. In this great state we have every reason to feel hopeful of the future, for at the head of our state medical department, we have in Dr. Rankin, a man modest, kindly, all accomplished, wise, he has a head to contrive, a tongue to persuade and a hand to execute. With the increased facilities furnished him by the last General Assembly disease will soon be removed from the realm of superstition and tradition. The pestilence that walks in darkness and the distruction that wasteth at noon-day will cease to have an unreal and vague indefinite meaning for our people, but they will soon come to recognize that this among other things refers to the fly, the mosquito and other disease carrying mediums. They shall understand disease and see God himself as he uses the weak things of earth to confound the mighty and destroy the careless, the ignorant and the vicious.

If our people came to regard the fly and the mosquito as angels of death, smiting those who fail to guard against them, it need not do violence to their faith. And should we see the impure water used for drinking and other domestic purposes, flowing red, with all the blood of our citizens who have died by using it, the vision would not be over-drawn by any means.

A better day has dawned, the light is pouring through the clouds in many places. Our present noble governor has never turned the deaf ear when some scientist was pleading for the health and life of the people. We believe he would fight for a National Department of Health. Surely we as medical men

will never trust those who would foist upon the people charlatons and their pathies and isms.

Within the next few years our people are going to be taught something of diseases and their prevention and impure water, flies, mosquitoes, tubercular sputum, improper housing, insufficient and poorly prepared food, along with dust and filth and other undesirable conditions, things and citizens. Then we will lessen the number of funeral processions. When you have taught the people these and other economic things. Length of days and riches and honor will cease to be an empty dream or no dream at all, but they will be the happy realization of our people.

THE RELATIVE VALUE OF THE VARIOUS TUBERCULIN TESTS USED FOR THE DIAGNOSIS OF TUBERCULOSIS.

CHAS. C. ORR, A.B., M.D.

When tuberculosis has advanced to that stage when marked signs and symptoms of the disease familiar to both the spcialist and the general practicioner are plain it is easy to make the diagnosis. It is important that the diagnosis should be made before this stage in order that much good may be done to the patient and to humanity. In the majority of cases of tuberculosis there is a time when infection has taken place, and when the signs and symptoms of the disease have not progressed to that point where the specialist or prectioner can be positive of his diagnosis. This is not only true of incipient cases of pulmonary tuberculosis, but of tuberculosis of various parts of the body, as tuberculosis of the larynx, eye, skin, glands, bones, joints, genital tract and of the serous membranes. When we have exhausted every other means of making a diagnosis, and have failed to come to either a positive or negative decision, then and then only should we revert to one or more of the tuberculin tests. The specific method of diagnosis based upon the theory of immunity and the power of the tuberculous patient to react to tuberculin is the greatest aid in diagnosis, and this method must become the common property of the profession in general. If we are to fight tuberculosis successfully it must be through the general practitioner. The specialist sees but a small percentage of the cases: the general practitioner sees them all. It is he who must ever be on guard for the disease, to find it lurking in unexpected places, to diagnose, to advise and to insist upon treatment. By means of specific diagnosis in early stage cases the patient would be able to begin his treatment earlier, either in a Sanitorium or health

resort or at home, and especially to so conduct his habits of living that he will not be a menace to those with whom he comes in contact. Hence, it is important that every physician, both practitioner and specialist in every line, familiarize himself with the various tuberculin tests; their dangers if not employed properly, the advantage of one over the other, their comparative reliability in the various forms of tuberculosis and their great help in diagnosis when the right and proper test is employed.

It is my object in this paper to give the technique of the various tests and their comparative value, trusting that the paper will not have been in vain if it only helps some one in being able to use the tests intelligently in making an early diagnosis and thus bring untold benefits and blessings to the patient.

For the specific diagnosis of tuberculosis we have the following classification of tests:

(1) The cutaneous or Von Pirquet's test.

(2) The percutaneous or Moro Ointment test.

(3) The conjunctival or Wolff-Eisner test or Calmette test.

(4) The subcutaneous test or Koch's original tuberculin test.

The cutaneous tuberculin test was introduced by Von Pirquet. The technique is very simple, yet to exclude failure, directions should be followed very closely. A common lancet and Koch's Old Tuberculin are all that is necessary in order to perform the test. At first Von Pirquet used a 25% dilution of Koch's Old Tuberculin, diluting with ½% of carbolic acid solution, but now uses the undiluted tuberculin, this necessitating only one test being made whereas if the diluted solution is used and showing negative, another test with the undiluted tuberculin is necessary. However, it is better to use the 25% solution in children and the pure in adults. The site for inoculation is the inner side of the forearm. The skin is cleansed with ether, two drops of tuberculin are placed on the arm about four inches apart, and a circular scarrification is made with a

point of lancet. First, midway between the two drops and then in the center of each of the two drops; the middle scarrification being used as a control. Any considerable oozing of blood being avoided as much as possible; this being done by seizing the forearm with the left hand, stretching the skin and making with the needle or lance held in the right hand a rotary scratching movement, being certain always to make a lesion. The instrument first should be sterilized by holding in flame to be certain of carrying no infection. After the inocculation, the drop should be allowed to soak into the lesion for some minutes. It should be observed if possible every twelve hours for forty-eight hours. We should distinguish between the traumatic reaction and the specific reaction, the former appearing in a few minutes while the specific is usually late, varying from three hours to several days, consisting of hyperaemia and exudation and slight raised reddening. The maximum of the reaction is usually reached within forty-eight hours then the exudation disappears, the redness fades gradually into a violet pigmentation which may remain for several days, followed by a peeling of the epidermis. This reaction may vary in appearance depending upon the condition of the patient; bright red in the well nourished, pale red in the anemic, colorless or livid in those in the last stages of tuberculosis. Von Pirquet speaks of warty nodules around the reactions obtained in scrofulous children. Of the specific nature of the cutaneous tuberculin reaction the whole literature on the subject leaves no doubt. Conclusive in this respect is Von Pirquet's own experience on 1600 cases of which 200 were examined post-mortem and confirmed the finding of the reaction. As a sequel to the cutaneous test, Moro and Doganoff observed scrofulous changes in tubercular children; Oppenheimer the transition of the site of inocculation into chronic ulcer. Eisner saw in one case lymphangitis with swelling of the cervical lymph glands. Bandelier saw in one case furunculosis of the fore-arm follow a reaction due to a staphylococcus infection from the scarrification. It has

been maintained that the reaction affects the body at large, this occuring only in susceptible patients when the tuberculin in the scarrification has reached the deeper tissues. The temperature is never high or of long duration. The harmful results of this test are very rare indeed, and its freedom from risk makes it very reliable especially in childhood. The advantages are that the local reaction takes place nearly always without a general reaction. Mischief from the inocculation practically never occurs. The reaction indicates tuberculosis in some part of the body; the negative result usually indicates no tuberculosis, but may fail, explained by the local constitutional condition of the patient or by tuberculin immunity after treatment. It fails during measles and in the last days of fatal tuberculosis, in the final stages of miliary tuberculosis and in tuberculous meningitis. Bandelier and Rœpke got positive reaction out of 97 to 98%. Von Pirquet positive reaction in 97% of tubercular children, showed up at autopsy, while all children at autopsy who had no tuberculosis had also given negative reaction.

The percutaneous test was first advocated by Moro and Doganoff. It consists of equal parts of Kock's Old Tuberculin and anhydrous lanolin, using for the test a piece about the size of a pea. Sites for the test being the abdomen, just below the ensiform process or the skin of chest near the nipple. After rubbing on the ointment covering a space of about five contimeters it should be left exposed for some seconds, no dressing being necessary, though some advocate covering with oiled silk. The reaction shows itself in isolated, distinct reddened spots appearing in twenty-four or forty-eight hours and disappearing in a few days. Sometimes there is itching with slight peeling and pigmentation of the skin. Seldom is there a general reaction with temperature. This test is absolutely harmless under all circumstances and in all cases; the only question being as to the reliability of the test. Moro saw the percutaneous reaction marked in scrofula and tuberculosis of the bone and less marked in advanced tuberculosis, and obtaining

in all these a positive cutaneous reaction. Von Pirquet declares the reaction not well adapted for a means of diagnosis of tuberculosis. Heinemann, by comparison, declares the inunction tests in adults as reliable as the conjunctival test, but less harmful. Bandelier and Rœpke in one hundred tubercular cases employed the three tests, viz, cutaneous, percutaneous and conjunctival and found variation, but the percutaneous less frequently positive. From this it appears that the percutaneous test is inferior to the other. However, there are no contra-indications to Moro's test and it can be used in cases where there is fear on the part of patients or parents in using the other tests. It must always be explained that a negative result does not exclude tuberculosis.

For the conjunctival tuberculin test Calmette recommends a tuberculin precipitated by 95% alcohol washed thoroughly with 79% alcohol, dried and ground into a powder and redissolved in sterile normal salt solution. He uses in adults a 1% solution and in children ½% solution. In 10,000 cases he used it without danger. Wien and Gunther claim that the 1% solution gave rise repeatedly to serious lesions. Others claim the appearance of miliary nodules on the ocular conjunctiva after the use of the 1% solution. Waldstein gives a persistent warning against the conjunctival test in general as a diagnostic method. Bandelier and Rœpke recommended as a good, cheap and most trustworthy preparation Koch's Old Tuberculin, diluted with ½% carbolic solution, using in adults first a 1% solution and second a 2% or 4% solution, and in children using a ½% solution. With a drop pipette a single drop is brought as near the inner canthus of the eye as possible not allowing the pipette to come in contact with the eye. Itching afterwards may occur and the patient should be warned in regard to rubbing the eyes as irritation may thus be produced. Reaction may take place in from four to six hours, generally after twelve or twenty-four hours, remaining for three or four

hours. Positive reaction according to Citren may consist of one of three grades:

(1) Reddening of the caruncle and palpebral conjunctiva.

(2) Intense reddening with involvement of the ocular conjunctiva and increased secretion.

(3) Increased reddening of the whole conjunctiva with chemesis and much fibrinous and purulent secretion and small ecchymoses.

The reaction should always be compared with the other eye as control. Hypersusceptibility is not made by repeated instillation unless there be tuberculosis in some part of the body; if not in clinical form, in an anatomical form. In very cachetic patients and in far advanced cases just before death the reaction does not occur. The reaction occurs in only about half the cases of active early tuberculosis, hence, there is a limit to the practical value of the conjunctival test. Harmful actions of the conjunctival reaction on the body have not been observed. Photophobia, itching, burning and lacrimation does occur in severe reactions. Owing to the dangers to the eye locally it is not as harmless as the cutaneous test.

The danger being severe reaction, which to avoid one should use Koch's Old Tuberculin, having ½% carbolic acid solution as a dilutent and by always using aseptic precautions. In repeating instillations stronger solutions that 4% in adults should not be used and 1% in children. Never repeat earlier than three or four days. Conjunctival test should never follow subcutaneous. Cases have been reported where the reaction of eye occurred after each injection of tuberculin, causing treatment to be discontinued. Never use the test in ocular diseases.

The subcutaneous tuberculin test is made with Koch's Old Tuberculin. Dilute with ½% carbolic acid solution, always making up fresh dilutions. Two dilutions are necessary, viz: a 1% solution and a 1-10% solution. This test is the most reliable and the one to be used where others fail. In making tests

accurate dosage of tuberculin is necessary and this can be obtained better by the subcutaneous test than by any of the above mentioned methods. The best time to inject is early in the morning, giving time for the reaction to take place before the patient retires. As to dosage, Koch recommends using 1mg. at the first injection and increases to 5mg. after forty-eight hours, and if necessary, 10mg. after another forty-eight hours. Many recommend smaller doses for weak and nervous patients, 1-10 mg. and 2-10mg. Many authors recommend four injections before the existing of tubercular lesions may be excluded. This I do not believe necessary especially where larger doses are used, one or two injections being sufficient, and if the same value is given to the skin reaction at the point of injection as is given to the skin reaction in the Von Pirquet test it is doubtful if more than one injection is ever necessary.

In the subcutaneous test we are likely to have a three-fold reaction:

(1) The local or needle track reaction.

(2) The focal or specific reaction.

(3) The general or febril reaction.

The local or needle track reaction which occurs at the point of injection should be controlled with the ½% carbolic acid solution used as a dilutent or with normal salt solution. This reaction should be carefully observed as it is of great value in making a diagnosis, especially in children, and prevents the necessity of making a second injection where the general reaction has not occured.

The focal or specific reaction occurs in the affected area of the lung and indicated by increased roughness or moisture of that particular point. In tuberculosis of other organs and parts of the body the focal reaction will be marked by pain, swelling, reddening and an increase of any symptoms peculiar to that particular organ.

The first general symptom is fever and the reaction is considered positive if the temperature rises ½ degrees above the

highest temperature before injection. According to the temperature the reaction is denoted as slight, moderate or severe. The rise of temperature begins on an average of from eight to ten hours after the injection but there are cases where the reaction occurs in four hours and in other prolonged to thirty-six hours. Psuedo reaction may occur in patients of psychical and nervous temperament, such patients should be controlled with injections of water. Reactions may begin with rigor, chilliness, malaise, giddiness, nausea and vomiting, followed by severe headache, pain in limbs and a general aching. There may be pain, swelling and reddening at the point of injection, increased cough and an increase in the sputum. Special treatment of a severe reaction is seldom necessary, though occasionally phenacetin for headache and temperature may be advisable and bromides for sleeplessness may be given. Rest in bed may also be advised. Reactions usually do not last long and pass off without doing any harm.

There are certain contra-indications:

First, a temperature over 37.5 by mouth rendering impossible the significance of a febrile reaction.

Second, when the clinical history and physical signs of tubercle bacilli in the sputum makes the diagnosis of tuberculosis positive.

Third, recent hæmoptysis, there being the possibility of the reoccurrence of the hemorrhage during the reaction.

Fourth, heart disease, there being a possibility during a reaction of causing angina pectoris, pre-cordial distress or dilation of the ventricle.

Fifth, renal disease.

Sixth, epilepsy in which there is likelihood of causing recurrence of the attacks.

Seventh, when miliary tuberculosis is suspected or intestinal tuberculosis and in convalescents of severe sickness as typhoid, scarlatina, pheumonia, etc., and in patients with diabetes,

marked arterio-selerosis, or amyloid degeneration of the abdominal viscera.

The indications are: (1) to make an early diagnosis of tuberculosis; (2) to determine the course of treatment when difficulty in making a diagnosis is present. In children the dose for adults should be reduced one-half.

The subcutaneous test is, according to observation of Binswanger, the most reliable. Out of 261 children whom he injected 35 reacted and of the total number 42 were examined post-mortem. Sixteen who reacted were tubercular and of 26 who failed to react 25 were found to be free of tuberculosis. These children were all under one year of age and not a single bad result observed from the injections.

Having described the various tests the practitioner wishes to know which test he must employ and rely upon in his particular doubtful case. In the first place where the subcutaneous test is contra-indicated the local methods of reaction are to be used and they alone, i. e., when fever is present, hæmoptysis occured; in cordial or renal disease, in epilepsy or hysteria, in convalescents from acute diseases, in all cases of severe diabetes, tendency to apoplexy, advanced arterio-sclerosis and in amyloid degeneration of the abdominal viscera. A positive cutaneous reaction may also occur in cases of foci, in lung or glands so inactive as to no longer be called a disease. In adults a positive cutaneous reaction may point to a tubercular infection having some time previously occured and healed, whereas a negative reaction excludes with great probability the presence of tubercle in the lungs. The conjunctival test is limited to patients with sound eyes and here often a repetition of the instillation three or four times is necessary, and repetitions of the same eye are not to be recommended as it often leads to severe ractions which it is better to avoid. With advanced cases the conjunctival test is more reliable but with first stage cases it is not so trustworthy. In second stage cases perhaps

75% react; in third stage cases perhaps 100%, but in these cases we do not need the test. Positive reactions do not indicate the locality of the trouble or as to its active or inactive character. In incipient cases the cutaneous tests are uncertain but can be used. If both cutaneous and conjunctival tests are positive then a diagnosis of tuberculosis can be decided upon. If one or both are negative tuberculosis can not be excluded. Both tests sometimes may fail in active tuberculosis. In all cases the subcutaneous test is the most reliable and the most valuable because in many cases focal reactions occur and allow conclusions as to the site of the tuberculosis in the lung.

In laryngeal ulceration in which the history, constitution and signs make it doubtful as to whether it be due to tuberculosis, syphilis or malignant growths, and in incipient or doubtful cases of tuberculosis accompanied with slight changes in the larynx, as tired voice or thickening of speech, tendency to cough, slight roughness or swelling of a particular spot, we must ask ourselves if tuberculosis is not present? The question can only be answered by means of the tuberculin test, and the only reliable test in these cases is the subcutaneous and is to be used in preference to all others. The signs of local reaction in closed foci is inflammation with some swelling and reddening, and in open foci there is necrosis, and in both, the voice may become less clear or there may be a feeling of swelling and fullness in the throat. In aural disease the tuberculin test is rarely used, a diagnosis being made from the local and general signs. The various tests give but little help. In ophthalmic practice the cutaneous positive reaction is of help only when we can exclude tuberculosis from any other part of the body. The conjunctival test has been of some value in determining the presence of a tubercular affection of the eye. In skin diseases we find the cutaneous test of value in making diagnosis of tuberculosis. The skin is highly susceptible and gives a more marked reaction than when there is only internal

tuberculosis. The reaction is characterized by redness, nodules and lichenoid eruptions.

Bandelier out of twenty-six cases of localized skin tuberculosis got a reaction in twenty-two while four who did not react were cachectic, running high fever and had miliary tuberculosis of mucus membrane. The subcutaneous test is only to be used in doubtful cases and where the cutaneous test fails. In diseases of the glands, bones and joints the subcutaneous test gives us the most reliable results since its focal reaction points to the site of the disease. In glandular tuberculosis after the first injection we have swelling of the glands. In bone tuberculosis swelling and increased tenderness are unmistakable signs of tubercular involvement. In genital disease the cutaneous and conjunctival tests are of little value. The subcutaneous test is of great help in that it causes a local reaction. In vesical reaction we have frequent ulceration with pain in the region of the bladder. In renal tuberculosis we have unilaterial or bilateral tenderness. In testes and epididymus there is a heavy, dragging sensation with tenderness, pain and swelling. In vulva or vaginal diseases the reaction can be seen. In the uterus and its appendages there is pain and feeling of weight in the pelvis and sacral region. In tuberculosis of the serous membranes the subcutaneous test is of value only in clearing up the diagnosis of tuberculosis of the peritoneum. In meningitis the cutaneous test often does not react and the subcutaneous test should not be used, owing to the fact that a reaction may result in death. In pleurisy with exudation the subcutaneous test is also contra-indicated.

In conclusion the place of tuberculin as a diagnostic aid to tuberculosis is well established. It is left to the physician as to which test he shall use after excluding the advantages and disadvantages of each test as suited to the particular case of the patient. The subcutaneous test stands first. As to prognosis all tests are valueless. Bad effects to patients may be avoided by careful and exact technique on the part of the physician.

TYPHOID VACCINATION.

C. N. Peeler, M.D., Charlotte.

Knowing that typhoid fever is prevalent throughout the U. S. and that about 350,000 persons have this disease every year, and that something like one-tenth of these cases prove fatal, is it not very important then that something more should be done towards decreasing its prevalence? The old adage, "An ounce of prevention is worth a pound of cure" is especially true in this condition.

The only place for typhoid bacilli to live for any length of time is in the human body. So every case must have its origin from a former one either directly or indirectly. Then if our general and special prophylactic measures were perfect typhoid fever would soon become a disease of the past. But it is a disease, like the poor, which is always with us; and no matter in what part of medicine one may be interested, whether as a clinician who has to do with diagnosis and treatment or as a sanitarian who has to do with prevention and extermination, there is need for both treatment and prevention.

Vaccination against small-pox has become so general that we rarely hear of a serious epidemic. In fact, a case at the present day doesn't excite the alarming fears that small-pox once did when a case was reported in a community. At the time Jenner first gave his results from vaccination people looked upon it with a great deal of fear. Now it is different.

I wish to discuss the use of typhoid vaccine from three different points of interest:

(1) As a curative measure in the treatment of the disease.

(2) In a therapeutical measure in carriers of the bacilli.

(3) As a prophylactic measure.

(1) *As a Curative Measure.*

Typhoid fever is an acute bacteremia plus a toxemia, often severe in character, hence it is scarcely to be expected that

brilliant results are to be obtained from the vaccine treatment of the disease, especially when the bacilli and toxins are poured into the general circulation in great numbers. But, when the type is of a mild character and the bacilli passing into the circulation in small numbers then the introduction of dead bacilli into the general circulation and thereby the production of additional antibodies may effectually exercise their therapeutic properties against the progress of the disease.

A number of clinicans have been testing the curative influence of proper inoculations with bacterial vaccines in typhoid fever. One of the first observers along this line was Capt. Smallman of the British army. It has also been tried by a number of competent men in our own country. Formerly there were views both for and against injection of typhoid bacilli in the treatment of typhoid fever; some claiming that they have obtained incouraging results, while others declare that "no effect on the clinical conditions, in the way of either improvement or aggravation of the symptoms was noticeable." Anders says in summing up a paper read before The American Medical Association at St. Louis, June, 1910, that vaccine therapy in the treatment of typhoid fever should receive a more extended trial before being rejected, and especially in the early stages of the mild types of the disease. Also where there is a local infection with the typhoid bacillus, as in bone suppurations which arise during convalescence, and in long continued cases to prevent relapses.

It seems that every recent investigator who has been concerned in this special treatment has been convinced that the injections produce a good effect in making the fever run a milder course and that no bad effects were noted. Before leaving this phase of the subject I want to remind you of a case reported by Dr. Ruffin of Washington city which is as follows: Patient was admitted to hospital with a well marked case of typhoid fever. He began to convalesce in about two weeks but in a few days he suffered a relapse which continued

for several weeks without showing any tendency of a spontaneous cure. After six weeks the patient's temperature ranged from subnormal to 101° F. and he was gradually growing worse. There were no complications to account for the temperature. It was simply a case of chronic typhoid. He was given one dose of anti-typhoid vaccine of eight hundred million bacilli. There was a decided rise of temperature for 24 hours after which the temporature fell to normal and remained so. The patient had a rapid recovery from that time on.

(2) *Against the Carriers of Typhoid Fever.*

It has been estimated that at least 4% of all cases that recover from an attack of typhoid are carriers of the bacilli and thus are sources of danger to the community. Major Russell of the U. S. Army Corps has pointed out by careful investigation that all cases of fever come from some other cases; that man is the host of the bacillus. Furthermore he contends that the bacilli live in water not longer than two weeks, and in polluted soil for only a few months at most and that the great majority of cases of typhoid fever can be directly traced to a former host. The bacilli have been found in the Gall bladder twelve years after the individual had a known case of typhoid fever. Knowing these facts, gentlemen, how great a source of danger these carriers are to the general population; it is remarkable how we do not have more cases of fever than we do, especially in the rural districts and small towns that do not have improved sanitary conditions.

In treatment of carrier cases of typhoid fever vaccination may prove of untold value. Houston of England has reported four cases of carriers treated. Three of these were cured. One of them was a domestic who had typhoid fever seven years before. In the interval six cases occured in families in which she had worked. An examination of her urine and stools showed bacilli in the former in abundance. She was

treated with the usual urinary antiseptics, tonics and rest for weeks without the disappearance of the bacilli from the urine. An antogenous vaccine was prepared, and after the fourth injection was given the bacilli disappeared, and marked improvement in general health of patient resulted.

The trouble is to tell who are carriers and who are not. It takes an expert bacteriologist with a well equipped laboratory at his command to differentiate the carriers. By the examination of feces and urine the bacilli have been found during the first days of the fever. In one case in Major Russell's laboratory they were found on the second day. If all the carriers could be discovered and vaccination be done a long stride would be made to improve conditions against infections with the bacilli.

(3) *As a Prophlactic Treatment.*

It may be said, and truthfully so, that anti-typhoid inoculation as a treatment of the disease and for the elimination of the bacilli in chronic carriers is still in the experimental stage; on the other hand this is not true of inoculation for preventive purposes. The rationale of this procedure is now proven by experience in the English, German and American armies. Something over 400,000 soldiers have received the injections. The reports from the U. S. Army given out during 1910 show that from 14,000 vaccinated persons only three cases of fever occured and one of these was contracted before the injection. All three cases were mild. Of the remaining part of the army something over 70,000 there were 306 cases of fever with average mortality. Of all the injections there has not been a single fatal occurence.

In the injection of the dead bacilli into the normal person sets in full motion the machinery of immunitization and this causes newly formed specific antibodies to make their appearance in the blood. Also, it seems that the bacteriacidal powers of the body cells are increased. It is not known just how long

this acquired immunity lasts, but in the army it is counted as positive for at least three years. Drs. Richardson and Spooner of Boston who have given injections to 405 individuals among the nurses' training schools of that city, claim that those inoculated have acquired an increased resistance to typhoid infections which will last them for several years, at least.

The method of procedure is a simple one: The first dose, as given by the army officials, is ½ c. c., or about five hundred million dead bacilli; the second and third doses one c. c., or one billion dead bacilli, each injection to be given ten days apart. The point of injection is at the insertion of the Deltoid muscle on the anterior rather than the lateral aspect of the arm, care being taken not to strike the cephalic vein which is at the anterior margin of the muscle. The injection should be given subcutaneously and not into the muscle nor into the skin.

The arm should be cleaned up as for an ordinary operation and the needle perfectly sterile. Our method at the college has been to thoroughly scrub the arm with a piece of course gauze and sterile hot water, care being taken that the scrubbing is thoroughly done; then to wash the arm with 95% grain alcohol. As soon as the arm is dry give the injection. The best time for the injection is about 4 or 5 o'clock in the afternoon so that the greater part of the reaction is over before morning. Every boy's temperature is taken to see if it is normal. In case there was any indication of disease the injection was refused; persons who are 50 or over and those who have had typhoid fever should not be vaccinated. In from 4 to 6 hours after the injection, there is some headache, and malaise, as several of the boys said, they felt as if they were taking a severe cold. There is some local reaction consisting of redness and a tender area about the size of the palm of the hand. The axillary lymph glands, also become enlarged and tender. The temperature rarely goes above 101° F. Some individuals are more susceptible than others and develop a more severe general reaction consisting of headache, backache, vomiting, etc.

Both the mild and severe reactions pass off in from twenty-four hours to three days time. The percentage of severe reaction is very small.

Of the forty-five students at the college who have been given the injections only one has missed any recitations from the effects, and that was for only one day.

The first injection gives a more severe reaction than the second and third. The third rarely having any effect whatever. In one case there was no reaction from any of the injections.

The more I study the subject of preventive inoculation for typhoid fever, a disease which kills more than thirty-five thousand in the United States every year, which brought on a protracted spell of illness for a hundred and eighty persons in Charlotte, 7,000 in the state, during the year 1910, and which caused the death of ten per cent of this number, the more I am convinced that this prophylactic measure should be carried on by all our physicians.

RHEUMATISM—FURTHER DISCUSSION OF AN OLD SUBJECT.

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I suppose no subject better illustrates the old saying, "many men of many minds" than the one I am undertaking to discuss in this paper. This is not only true from one standpoint, as causation, or treatment, but literally embraces every side of the subject. Forty years ago there was wide diversity of opinion as to treatment, and with the prevailing opinions of the time as to the causation of the disease, a torpid condition of the emunctories as the predisposing cause, and cold and exposure as the exciting cause, the therapy of the disease was based upon this view of the malady, and there were many remedies exhibited in a perfectly empirical way, the remedy having the most reputation being "six weeks." I am familiar with the discussion as to whether or not Rheumatism is due to a specific germ, and must confess that I have not arrived at a definite conclusion in the matter. The tonsils are claimed to be the avenue of entrance for the infective germ into the system, and consequently a bloody crusade has been made in exterpating them as a preventive means against the malady.

Undoubtedly the germ theory of the causation of disease, whether it can be sustained or not, has been much colored by the progressive and advanced views, some of them proven, of the germ causation of disease, and the search after truth naturally turns to this explanation as the solution of a difficult problem. Conspicuous among the symptoms of Rheumatism is the excessive acidity of the sweat and urine, this is due to an excessive amount of lactic acid in the blood and general system, or is supposed to be, as by some, this excess is charged with being the causative factor of the disease. This similar to the reasoning which makes uric acid in the blood and gen-

eral system the cause of gout. I do not believe that this is true in either case. The excess of lactic acid in Rheumatism as of uric acid in gout, has back of the condition of acidity, a complex cause of destruction of balance in the process of metabolism and the various physiological processes which enter into it, the excess of acid in either case being the result of this condition and not the cause. So far as gout is concerned, the onus of causation back of metabolism is put on errors in diet, and I would add that due weight should be given to excessive nervous strain. In Rheumatism, how much errors in diet, nervous strain, or exposure may be causative we are unable to say, nor do I believe that any one has satisfactorily demonstrated that the entrance of a specific germ into the system is responsible for the excess of lactic acid, so conspicuous in the sweat and urine of cases of acute Rheumatism, eliminated through these channels from the system. Furthermore in this discussion of Rheumatism it must not be confined to the lesions found in the joints, characterized by pain, heat and swelling with discoloration, but must be extended to that condition found in the muscular system as well, involving groups of muscles, or the general muscular system, rendering the patient, as I have seen totally unable to even turn over in bed without assistance, and defying all remedies for weeks. Of course Rheumatic arthritis and the damaged condition of the articulations seen in that affection are not under consideration, that is a different affection. If it be true that Rheumatism is caused by a specific germ finding entrance to the system through the tonsils, the present crusade in the removal of the tonsils and adenoids in the young subject, should render the next generation immune to Rheumatism, and the malady become, only, a remembrance of the past, does any intelligent man believe that this will be the case? Coming generations will still have to contend with the factors of exposure and disordered metabolism. I quote in substance from Loeb of Chicago, (Archives of Internal Medicine, October 15th, 1908). "The advocates

of the germ theory of Rheumatism point to the investigations of Achalme and his followers, notably Thirolaix; Thiboulat, Apert, Westphal, Wesserman and Malikoff, and the large school in Germany and England, especially Poyton and Payne. Achalme described a baccillus similar to the baccillus of anthrax, isolated from a case of acute Rheumatism, dying on the fourth day. Later he reported a second autopsy, with similar findings, and also found the same in six living patients. Thirolaix found the anaerobic baccillus in nine cases of Rheumatism, and other French and Italian observers a few times. Lesions were produced by these observers in guinea pigs and rabbits resembling Rheumatism, endocarditis, pericarditis, and pleurisy. During the last ten years, an enormous amount of time has been given to the study of the bateriology of Rheumatism, and not more than eight or ten observers have found the organism. The manifestations in animals have not resembled those in the human being. Achalme believes the germ responsible for some, but not all cases of Rheumatism. Payton, Payne and others have become convinced of the specificity of the germ, but unfortunately, many of their cultures have been derived from the cadaver. Flexner's observations have shown that various organisms proliferate in the human body, and are found in the blood before death. Philip failed to grow the organism in twenty-one cases in which blood cultures were attempted, and in six inoculations from the knee-joint." "Meyer was unsuccessful in thirty cases." He concluded that the disease was an intoxication from bacteria which remained localized in the throat, or if the organisms entered the blood they were rapidly destroyed there. Meyer was compelled to assume that joint involvement in scarlet fever, typhoid fever, and other diseases transient in nature were produced by a mixed infection." Walker in a recent paper admits that the case in favor of Micrcoccus Rheumaticus is not proven. The experiments of Widal, Benzoncon, Griffin and Coles have rendered it doubtful, whether other organ-

isms may not act as causative factors in the disease." Coles observations for years of blood cultures at the Johns Hopkins Hospital showed them to be invariably sterile. In conclusion Loeb after elaborate investigations says, "it is difficult to draw any positive conclusions from my work. Until the coccus is proven to occur in most of the living patients as well as the fatal cases of Rheumatism, the claims for its specificity will remain on an unstable foundation." Osler says, "its bacteriology is still under discussion, that there is considerable evidence against the view of its being a mild pyogenic infection, the morbid anatomy shows no characteristics of the disease." Kelley says, "the cause has not been isolated." Schloss says, "diagnosis can be based only on the clinical features of the disease." In the face of the above facts from observers whose competence none will question, the fact must be admitted that the whole question of the bacterial origin and infection of Rheumatism is open to grave doubt and much more accurate observation and investigation. The men educated since bacteriology was introduced and developed, necessarily gives them a bias favor of the germ theory of the causation of all diseases, to the older men than these, scepticism is natural, but the honest observer will occupy a middle ground, and is in the position to arrive at just and accurate conclusions. Therefore let us be earnest and honest seekers after the truth for the development of a rational and efficient therapy to relieve a suffering humanity. Bearing in mind the foregoing statements, the treatment of Rheumatism must of necessity be more or less empirical. The introduction of the salicylate group has undoubtedly furnished us a valuable remedy. But the method of exhibition of this efficient remedy has been more or less empirical, and I believe it is not free from danger, and in the hands of some fails, because of excessive dosage, or its administration before a proper basis has been laid. It should be preceded by such agents as will put the varied conditions of metabolism in a normal or nearly

normal physiological condition as possible. The gravest condition connected with rheumatism is cardiac involvement. We should never in any case loose sight of this danger, endocarditis being the most common complication. Conspicuous symptoms of acute rheumatism are intensly acid urine and sweat, indicative of the excess of acidity in the system. Clinicians speak of the administration of alkalies, and warn against excessive doses because of their deliterious action on the heart. My examination however of authorities, does not lead me to believe that these alkalies have been given in the best way; usually they have been exhibited with some form of the salicylates. Long experience has convinced me that an active mercurial purge should be the initial dose of medicine, to be followed by gr. x of the Bi-carb. of potash every two hours, until the sweat and urine are neutral, then the administration of the salicylates, gives excellent results. The patient should be encouraged to take copious draughts of water. At a meeting of the American Medical Association at Atlantic City, in a discussion of this subject, I was impressed by the almost universal omission of all alkaline treatment, and the enormous doses of the salicylates given, one speaker saying that he had given as much as 300 grs. of salicylic acid, or salicylate of soda, in twenty-four hours, special reference was made by these speakers to the head symptoms produced by the salicylates. Many observers claim that the salicylates protect the heart. I am satisfied that this is an error, on the contrary, I believe that it is more than probable that heart complications are much more liable to occur, if the salicylate preparations are exhibited before the blood is rendered neutral by the administration of an alkali. In this connection and pertinent to this discussion, let me call attention to the physiologic action of salicylic acid, the basis of the group. Large doses produce headache, visual disturbance, even to temporary blindness, sometimes extreme dyspnœa, *tumultuous heart action feeble in its beat.* Toxic doses produce nephritis, albumin and even

blood may pass off in the urin. Salicylic acid is an irritant to mucous membrane, it also has a cumulative action. It gives comfort in the pain of Rheumatism through its analgesic property expended on the end nerves. With the fact of its irritant action on mucous membranes, the blood already acid, circulating through the heart loaded with salicylates, it does not require any stretch of imagination to understand how it may increase the risk of endocarditis by contact with the heart lining, more logically explaining it than upon the basis of bacterial infection by a germ not yet known or proven to the satisfaction of the profession, or even of the investigators themselves. One can understand how the heart is protected when the agent enters a neutral blood, the kidneys already responding to increased elimination from the stimulus of a potash salt. It has not been my purpose to go into a discussion of the elaborate treatment of Rheumatism, what has been said is in the line of suggestion for careful thought. But in conclusion, a word as to the therapy of endocarditis. There is an increased viscosity and plasticity of the blood, predisposing to emboli forming in the heart as the blood whips over the muscular columns and tendons, these emboli being always a source of acute danger. I wish to emphasize the value of carbonate of ammonia, in doses of gr. v to gr. x every 2 hours, not only as an alkali and diffusible stimulant, but because of its property without depletion to promote an aplastic and fluid condition of the blood, thus minimizing the danger of the formation of emboli in the heart, diminishing inflammation and consequent risk of thickening and stiffening of the cardiac valves. In a word, that a patient under its influence is more apt to recover from an attack without a crippled heart. Nor is this all, it neutralizes effete material in the blood and stimulates the kidneys to an increased elimination of the waste products of metabolism. Of course what has been said is based on a careful and accurate diagnosis of acute Rheumatism from the clinical manifestations, both systemic and local-

ized in the joints, remembering that the muscles may suffer from the same general causation, and myalgias of all kinds will respond to the identical treatment indicated in articular Rheumatism. It is also true that the best men sometimes fail to distinguish between Rheumatism and the initial symptoms of rheumatic arthritis, benefit coming from treatment in the first case and only partial relief or no relief in the latter. Up to this time treatment as outlined, based on the old ideas of causation, have given better results, than that founded on the bacterial explanation of it as an infective disease. As progressive men it is most fitting that we should test all theories and hold fast to that which is good.

PERITHELIOMA OF THE PROSTRATE AND A RESUME OF THIS CLASS OF TUMORS.

HARLAND SHOEMAKER, M.D., SHELBY.

Clinical History.

Mr. J. C. DeG.—White, 78. Widower, Holland Dutch. Had suffered from enlarged prostate and general poor health, for a number of years. The obstructive symptom became so severe that the patient sought operative relief.

On admission to the hospital, the man showed marked emaciation. The urinary symptoms predominated, chief of which was dribbling of foul smelling urine. An enlarged prostate was diagnosed with marked obstructive symptoms. The gland was stony hard and the induration extended laterally, beyond the gland into the pelvic tissue. A catheter could not be passed.

Operation.

A superpubic extra peritoneal incision was made to establish drainage and to relieve the obstructive symptoms. The operative findings were a purulent cystitis and a small columnar tumor, stony hard, which corresponded to the middle lobe, or bar, of the prostate. The vesicle trigon was indurated, stony hard, laterally as far as the examining finger could reach. The tumor column was as broad at the base as at the summit, and obstructed the outflow of urine. The mass was removed and drainage left in the superpublic wound.

The patient died about 72 hours later and the complete autopsy protocol is as follows:

McManes Laboratory, 2842-09-142. Methodist Hospital Laboratory, Aut. 31, Case 420. J. C. DeG. 78, white. Died Sept. 24, 1909. Autopsy 12 hours later by Dr. Shoemaker.

Clinical Diagnosis—Enlarged prostate and prostatectomy.

Pathological Diagnosis—Carcinoma of prostate, perihepatitis moderate, lymphademitis carcinomatous, instertitial neph-

ritis, sclerotic pericarditis, cystitis, fibrous pleuritis, perisplenitis, healed pulmonary tubercles.

Emaciated man. 170 cm. in height. No post-mortem lividity. Slight post-mortem rigidity. Skin clear, mucous membranes pale, eyes clear, pupils pin-point, nose and ears clean. Very scanty subcutaneous fat. No oedema. No palpable glands, muscles emaciated. Bones and joints normal.

Abdomen—Fibrous adhesions about coecum very old and well organized. No fluid, peritoneum clear and shiny. A superpubic incision 10 cm. in length and extra-peritoneal drainage of bladder. Fluid from bladder, thin, reddish and purulent.

Spleen—130 gms. Preponderance of supporting tissue, organ flaccid, general perisplenitis over convexity of gland which is firmly adherent to the diaphragm. A large band is attached to the stomach above gastrosplenic mesentery. Capsule over one-half of convexity, calcified.

Stomach—walls very thin, mucosa atrophic, petechial ecchymosis into mucosa. Contents watery, with few milk curds.

Small intestine—at head of pancreas is bile stained. Jejunum normal. Ileum collapsed entire length. Mucosa pale.

Large intestine—Caecum dilated, few fibrous adhesions to pelvis. Appendix 8 cm., retrocoecal, mesentery to tip, organ slightly congested, contents of caecum yellow and formed. 3 cm. of transverse colon is contracted to 1 cm. Descending colon contracted. Sigmoid normal.

Liver—1440 gms. Cirrhosis moderate amount, cuts as though fibrous. Gall bladder firmly contracted over a piece cholestrum stone 1x2x3 cm. Gall ducts and hepatic duct normal.

Pancreas—lobules well marked.

Adrenals—yellow stippling of cortex. Medulla reddish with well defined cavity.

R. Kidney—150 gms. Upper pole and upper ¼ of glands site of cyst filled with clear amber fluid. Numerous small pea-to-amber-sized cysts appear over gland. Capsule tears kidney

substance open when stripped. Pelvis of kidney normal. Interstitial changes. Color pale. Dimple of old kidney infarct.

L. Kidney—240 gms. Few cysts 5 cc. in diameter. Gland is flaccid. Capsule sticks close to kidney substance. Pelvis shows subacute inflammatory changes of mucosa and presence of similar fluid to that found in the bladder.

Bladder—The site partial prostatectomy. Superpubic drainage established. Discharge of cream brownish viscid fluid. Fissure at vesicle trigone necrotic.

Prostate—Infiltrated with a carcinoma which appears scirrhous and adenomatous at various places.

Sections of prostate removed at operation show adenocarcinoma.

Left ureter is infected with similar fluid to that found in bladder.

Mesenteric lymph glands oedematous.

Retroperitoneal lymph glands prevertebral chain are enlarged 1x2x3 cm. and a number cancerous as high as first lumbar vertebra.

Thorax—Pleuritic adhesions obliterate right pleural sac. Left lung nearly free. Peribronchial lymph glands enlarged; very dark.

Right Lung—960 gms. is covered with parietal pleura. Mucosa of bronchus is apparently normal, a few thickened cartilagenous plaques at apex evidently tuberculosis.

Left Lung—840 gms. Intra lobular adhesions. Chronic passive congestion at the base, an area 3 cm. in thickness and 6 cm. in diameter at apex. Mucosa of bronchi shows subacute bronchitis.

Pericardium—Normal, 10 cc. clear fluid.

Heart—390 gms. Muscle flabby. Pericardium of viscera covered with large milk white patches. Right coronary artery leaves the aorta 15 mm. above the coronary cusp.

Aorta—A very moderate amount of atheroma is seen at site of coronary arteries. This increases in degree until the most

involved portion of the aorta is reached at a point between the renal arteries and the bifurcation of the aorta. Several atheromatous ulcers are seen. Incidentally the kidney shows the greatest amount of interstitial changes.

Tissues taken for histological study are:

1. Spleen.
2. Liver.
3. Pancreas.
4. Adrenal.
5. Kidney.
6. Bladder and Prostate.
7. Lung.
8. Retroperitoneal lymph glands.
9. Peribronchial lymph glands.

The obvious diagnosis at operation and at the autopsy table, was adeno-carcinoma, but upon more careful study of the sections from the prostate gland and from metastases in the lymph glands, the diagnosis of perithelimoa of the prostate with metastases is made for the following reasons:

The histological picture is that of a perithelioma.

An hyperplasia of the endothelial cells may take place in two directions outward or inward, which would give rise to a perithelioma or an endothelioma, the latter term being used most generally. Some of the continental writers insist upon a third subdivision, more or less academic, of mesothelioma, or a proliferation of endothelial cells in the middle coats of vessels. A further classification as to the origin of these tumors may be added accordingly, as to their origin in blood vessels or lymphatics.

Most writers agree that the cells have a mesoblastic origin, and consequently would be classified more nearly with the sarcoma than the carcinoma. However, these separate points will be severally considered later.

The coccygeal gland has been considered as the most probable origin of these tumors, when found in the pelvis. This

is the opinion held by German pathologists. In the tissue under discussion, the gland in question was never found owing to the great mass of enlarged and infiltrated glands in the region.

Lazarus-Barlow, writing on the subject of endotheliomata, previously reviewed 7,000 sections of tumors and metastases which had accumulated at the Middlesex Hospital in seven years. Approximately 10 per cent of these tumors proved to be endotheliomata, and were divided as follows:

	Total Cases	*Malignant Disease*	*Cases*	*Endotheliona.*
	1900-04	1905-06	1900-04	1905-06
Lip	50	5	0	0
Tongue	80	25	6	2
Mouth, palate, cheek	21	15	0	1
Oesophagus	32	14	0	1
Stomach	54	11	0	0
Uterus, vagina, vulva	175	59	17	5
Breast	300	151	32	16
Liver, bile passages	10	5	1	2
Bones, antrum, upper jaw	44	10	3	1

Differential diagnosis of perithelioma from adeno-carcinoma is never easy, the glandular arrangement of the cells in the carcinoma is never perfect, while the lumina which marks the perithelial growth, is its most characteristic feature. The endothelial cells are more clear, the relation of nucleus to cytoplasm is distinctly the reverse of that found in carcinoma, except perhaps those carcinoma of the skin where the cytoplasm exceeds the nucleus in cell area. Cell nests when found would decide such a diagnosis, although Lazarus-Barlow believes that the space between the prickle cell layer is more pathonomonic in tissue of this type.

Spheroidal carcinoma may easily be mistaken for endothelioma as the latter is nearly always a densely packed tumor, and the flattening of the cells may give the field under study a distinctly cuboidal appearance. I may add that I never have

seen such a slight difference in the size of perithelial cells and those of the normal lymph gland, in a gland infiltrated with a cuboidal carcinoma. However if the endothelial cells are traced outward one passes from an area simply cellular, to areas in which fibrous tissue is present or may even predominate. In these latter areas the resemblance to scirrhous carcinoma is marked. The tissue under discussion exemplifies these characteristics exceptionally well. It may be noticed in the section through a prevertebral lymph gland, that the islands of perithelial cells with their numerous lumina are surrounded by a ring of inflammatory fibrous tissue. In the prostate gland certain areas could not be identified other than scirrhous carcinoma unless one knew from what portion of the tumor the tissue came. Then it would be readily seen that the portion of the growth most cellular is exactly reverse to that portion of cellular growth found in scirrhous carcinoma—briefly, the fibrous portion of the scirrhous is central with the cells peripherally placed.

The diagnosis of perithelioma from angio sarcoma, either of hemal or of lymphatic origin, may be based entirely upon the amount and distribution of the fibrous tissue. Evidence of new forming vessels with fibrous supports to the vascular or lymphatic walls, I should decide to be sarcomatous. There is a wide range of sarcomatous tissue which resembles granulation tissue on the one hand and perithelioma on the other. There is a distinct difference in the appearance of the perithelioma and small celled sarcoma, more so than the difference in appearance of the perithelioma and spheroidal celled carcinoma. However the embryological origin of perithelioma is from mesoblastic tissue, which allies it more nearly to sarcoma.

The tissue under discussion is of lymphatic origin unquestionably. Ordinarily the perithelioma are formed from blood vessels. This tendency of the endothelial cells to proliferate outward is accounted for by the vascular tension on the vessel wall, whereas the very absence of tension in the lymphatics

gives rise to endothelioma. Nevertheless numerous lumina can be seen filled with masses of albumen which have coagulated in the process of fixation. A few polymorphonuclear leucocytes may be seen among this granular debris.

The following factors may be summarized as an aid toward an ultimate diagnosis:

Histologically, the peculiar brilliance of the tissue due to three factors, the pale staining of the nuclei, the usually large amount of cytopiasm of the endothelial cell, and the characteristic lumina of the tumor,—all three factors allow unusual translucence. Slight arrangement of lumina, no cell nests, absence of definite vessels, presence of coagulated albumen and leucocytes in lumina of endothelioma, completes, when in structural arrangement the greatest cell mass is central with a surrounding area of inflammatory fibrous tissue, the histological picture.

Pathologically, the hardness of the tumor due to the preponderance of cells, and the large number of metastases, completes the diagnosis of perithelioma, and so far as I am able to ascertain, this is the first perithelioma in the prostate gland, described in the literature.

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SUBMUCOUS TURBINOTOMY.

M. M. Saliba, M.D., Wilson.

Before describing the technique of Submucous Turbinotomy, let us first briefly review the functions of the nose, which are olfactory, phonatory, respiratory, gustatory, and the ventilation of the accessory siniuses. The gustatory is of least importance and it complements the sense of taste. The olfactory is of secondary importance and is located in the upper portion of the nasal chambers or attic where the olfactory nerve is distributed. The phonatory is of tertiary importance, it enriches the voice by overtone. The nasal chambers and accessory cavities are of prime importance in voice production, and any obstruction from swelling of the mucous membrane, deflection, or other lesion of septum so materially alter the quality of the voice as to make it disagreeable and inartistic. The respiratory and ventilating functions are of the greatest importance.

The nasal chambers are more than mere tubes through which air is drawn into the lungs; they produce certain changes in the air which prepare it so that the normal transfusion of oxygen and carbon dioxide may take place through the walls of the air vesicles. The respiratory functions of the nose are: First to warm or temper to or nearly to the body temperature the air in passing throught the nose. Second, to keep the inspired air in a state of saturation. The air is expanded by the warmth of the nasal chambers, and its capacity to absorb the moisture is increased. Third, by the vibrissae and the moist mucous membrane to filter the air in its passage through the nose.

In passing over a heated surface the air is warmed directly in proportion to the amount of heating surface over which it must pass. Nature has therefore placed in certain portions

of the nasal mucous membrane a tissue which can alter the area of its surface to accommodate itself to the varying conditions of the inspired air. The tissue which can thus contract and expand is the "cavernous or erectile tissue," and this cavernous tissue reaches its highest development in the median surface of the inferior turbinate and in the inferior surface of the midle turbinate—positions of the nasal chambers in the direct line of the current of inspired air. This cavernous tissue also reaches a high grade of development in the inferior portion of the inferior turbinate, and to a less extent on the anterosuperior portion of the septum—the tubercle. It is thus evident that the inferior and middle turbinates are highly funtionating organs and their removal must be accompanied by loss of their functions.

Surgical interference should always be accomplished with respect to the location of the "cavernous tissue," care being exercised to avoid their destruction. In my humble opinion, nothing does justify the removal of the turbinates in part or toto, except when it is done for the exploration of the different siniuses, for diseased or abnormal bone, or malignant growth; and even then, we must try to save as much as possible of the mucous membrane covering them. I believe that all the pathological conditions of the turbinates with the exception of the above mentioned are caused more or less by an abnormal septum and the treatment therefore should be first directed to the condition of the septum.

The technique of Submucous Turbinotomy is as follows: (1) Induce local or general anesthesia, local anesthesia with cocaine is preferable. (2) Make a vertical cut with the scissors at the anterior end, dividing the mucous membrane down to the bone. (3) Elevate the mucous membrane from the convex side by an elevator. (4) Divide the mucous membrane by a probe-pointed knife from within outwards. (5) Elevate the mucous membrane from the concave side. (6) Break off and remove the turbinate bone as far as necessary. (7) Smooth

the edge of the bone. (8) Adjust the flaps of mucous membrane. (9) Pack the nose in case of severe hemorrhage (rarely necessary).

This operation offers a few small technical difficulties which can, however, always be overcome.

SOME PHASES OF THE TUBERCULOSIS PROBLEM.

M. E. Street, M.D., Glendon.

Tuberculosis is a disease stalking in our State and claiming its victims by thousands yearly. There are some problems before us as to how we shall prevent this.

The disease has been so much neglected and so little understood that the average practitioner has an idea that it cannot be successfully treated except by an expert. Nothing in the field of medicine is farther from the truth.

The average tubercular patient is as well off under the care of the average practitioner, if the doctor understands the management of tuberculosis, as he is in the hands of the average tuberculosis EXPERT. The problem presented here is how to get the average practitioner to realize that he can treat tuberculosis successfully. Of course, it is understood that I speak of the disease in the early stage—in the curable stage. The successful treatment of tuberculosis no more requires a special climate and elaborate laboratory with microscopes, X-ray machines ozonizers, spraying apparatus, hypodermic, syringes and other equipment of like character than does the successful treatment of small-pox, measles, typhoid fever, dysentery, pneumonia, cholera infantum or any other common disease.

The quack methods and Charlatanism of many so-called tuberculosis experts have I am ashamed to admit, got most of our average practitioners bluffed to a standstill. The bluff has worked as effectually on most of them as it has on the average layman, and it is a disgrace to the medical profession, for it is costing many, many lives annually, as well as providing an endless succession of new cases of tuberculosis. No physician worthy of the name of doctor can afford to remain longer in such dense ignorance and retain his self respect

for the laity is being educated along this line and the physician who fails to timely diagnose and properly manage pulmonary tuberculosis is going to be discredited and disgraced. May that time come soon! How can we best hasten that day.

I know one man who had been to one of the tuberculosis sanatoriums where a lot of hoodooism was employed, who later on went to one where the hygienic-dieletic treatment only was employed. At this sanatorium he gained very rapidly and was taught how to live to get well. He admitted he gained health, weight and strength at this sanatorium very rapidly, but he left the institution in disgust, nursing a great big grievance because they did not give him treatment enough there. He went back home and growled and knocked the place with all his might. But his neighbors laughed him out of countenance because they could see he came back with the goods on him. The end of the story is that a little later he quit his foolishness and adapted the mode of living that had been taught him with the result that he is today a well man working and carrying on all of his business just as though he had never had tuberculosis nor been a fool.

One great misfortune for the sick is that as soon as the average physician doing tubercular work reaches the point where he begins to derive revenue he thinks more about collaring the almighty dollar than he does throttling tuberculosis.

The responsibility for existing conditions is a phase of the tuberculosis problem that should not be passed over, and I wish to say that the general public is getting a great deal more out of the physicians of the State along the line of the prevention and cure of tuberculosis than is being paid for. While there is more of the milk of human kindness in the doctors as a class than many other classes of men, they also have the limitations imposed by human nature, and when the people recognize the great value of the endeavor for the cure and prevention of tuberculosis that the physicians are engaged in and are willing to pay for it the incentive for more efficient work

will correspondingly increase the faithfulness and efficiency of the work.

When the rank and file of the profession realize that it is as much within their province, as much their duty and as much within their ability to successfully treat tuberculosis as it is scarlet fever, gastritis, rheumatism, syphilis and other common diseases, then and not till then, will there be any very material lessening in the death rate from tuberculosis.

PHYSICAL AND MENTAL HYGIENE IN THE YOUNG

Paul V. Anderson, M.D., Morganton.

Thanks to the great advances in preventive medicine in recent years by which man has saved man from untold pain and sorrow, the child is beginning to come into his own, and much is being done in a scientific way for his development. It is being recognized universally that first the child must be a good physical machine. Therefore, children are now being examined for defective sight, defective hearing, for adenoids and for any defect which they may have, which will, in any way, hinder their progress in school or prevent them from becoming strong and useful citizens. It is proper that physical development should receive attention first, but at the same time it must be borne in mind that mental hygiene is just as important as physical hygiene. For of what avail is the man who is perfect physically and mentally a dement? He is not only of no value to himself, but he is a parasite on his community.

Too little attention has been given to the development of the play instinct in children. "To acquire alert minds, children must be alert; and the young child can only be alert as his play instinct is aroused. Shut out the play instinct and you stunt his growth; neglect to draw it out, and you lessen his possibilities for strength."

Greece, which has produced the highest type of man the world has yet seen, recognized the great value of play, games and sports. That youth was most honored among them who excelled in athletics, for, to them, the best body signified the best mind. Dr. Stanley Hall says, "Knowledge for its own sake is a dangerous superstition, for what frees the mind is disastrous if it does not give self-control. Better ignorance than knowledge that does not develop a motor side. Body

culture is ultimately only for the sake of the mind and soul, for the body is only its other ego." The play instinct should be cultivated because play not only develops the child physically and mentally, but it is a developer of character. Games which require decision and action should be played. Let the child rub up against his fellows and find out his good points as well as his defects, for, in this way only can the corners be rubbed off and the nonsense knocked out of those who have been pampered and petted and made to believe by indulgent parents that they and they alone are the lords of creation. If more cities would follow the example of Chicago, which has spent ten million dollars on play grounds, the advantages derived by children therefrom would be incalculable. It has been well said of the Chicago play-grounds that "They are the greatest civic achievement the world has yet seen."

Physical hygiene, however, must be co-equal with mental hygiene if we wish to obtain the best results. Our system of education for many years has been based upon the idea that all children have equal mental attainments and there seems to be a mania for "standardization." The so-called standard boy or girl passes through the educational mill apparently unharmed, but those who are precocious or backward or in any way defective, suffer. It is of these unusual children that I wish to speak especially.

In the first place, at least one per cent of school children are feeble-minded. This percentage has been estimated as much larger by some. These idiots and inbeciles should be segregated, for association with them is not only detrimental to normal children, but they are a burden and a skeleton in the closet of homes otherwise happy. In many cases they are not only dangerous to their family, but they are a menace to the communities in which they live.

Another class of cases is that of the laggards—the repeaters of our schools—backward or retarded boys and girls. It is this class to whom much attention is being directed today, and,

thanks to preventive medicine and to scientific pedagogy, the future looms big with hope to these ugly ducklings, who, although they may take longer than the average child to develop, in many cases find themselves at last, and not only overtake their fellows, but frequently far out-distance them in the race of life. Hutchinson has aptly said, "Do not on any account neglect the average 'common or garden child.' He is well worth all the time and care you can spend on him; but put all your ablest intellects, your divinest patience, at work on the exceptional—yes, even on the abnormal—child; for among those brambles and tares you will reap some of the finest and most perfect of the wheat." Goldsmith's teacher said that he was the dullest boy she had ever taught; Byron stood at the foot of his class; Darwin was considered "a very ordinary boy and below the common standard in intellect," and Webster, in early youth, was considered a dullard.

The retardation may be due to defective sight, defective hearing, adenoids and acute infections diseases, or it may be due to too rapid growth, to the beginning of puberty, and, at times, even to starvation. Some children naturally develop slowly and have to repeat a grade two or more times, yet they are not defective, and if properly cared for and if properly taught, can eventually take their place with their fellows. It is of the utmost importance not to allow these often overgrown boys and girls to become discouraged because they cannot keep pace with their fellows. An effort should be made to find something which they can do well, no matter how simple it is, for once they get the habit of succeeding—of knowing they can do a thing well—they frequently begin to advance, and finally are able to take their places with children of their own age. Often such children, however, become the butt of ridicule and give up school in disgust. They are undeveloped mentally and become the vagabonds, the tramps and the derelicts of our towns and cities.

In speaking of retardation, Dr. Lightner Witmer says that

"any child, the functions of whose brain are not developed up to the normal limit for his age, is suffering from retardation, and a youth who arrives at the age of maturity with his brain below the level of functional development which it might have attained if other methods had been employed will carry through life a permanent arrest of mental and moral development." There is no doubt that many children stand at the parting of the ways and if a helping hand is extended they may become useful men and women. If it is withheld and they are neglected they become derelicts or even dements. Surely common humanity demands that these children should have the best attention medicine and pedagogy can give them. Before they are condemned as hopeless (and some are hopeless) physical examination should be made and every possible defect which could contribute to backwardness should be ascertained; then mental tests should be given to decide whether there is a simple retardation, which proper training can overcome, or whether there is a permanent mental defect.

Still another class is those children who are not defective, but who are rather "queer or peculiar" and who so frequently develop dementia praecox and constitute the majority of the cases in insane hospitals today. In the observation of several hundred cases of dementia præcox during the past five years at the State Hospital, Morganton, North Carolina, I have been greatly impressed by the fact that, as children, many of them were not defective, but were peculiar—different from other children, and did not "have healthy mental habits—habits which could have formed a sound balancing influence in their conflicts." Many were exceedingly bright and were the wonder children of the school, but were like "straw fires" which burn brilliantly for a minute and all is over. Others were dull and were unable to keep up with their classes. Many were seclusive—day dreamers; reticent, shy, sensitive to a fault and overly conscientious—that is, prematurely and one-sidedly conscientious. Instead of playing the rough-and-tumble games so

dear to most children they spent their time reading or in the company of their elders. They had no chums and missed the healthy intercourse with those of their own age which would have been a wholesome correction for their abnormal habits of thinking and living. Excessive religious interest was manifested by many and they worried over abstract problems which neither they nor anyone else could solve. Finally they came to live in a world of dreams and good resolutions. They lost sight of the real and "developed an insiduous tendency to substitute for an efficient way of meeting difficulties a superficial marolizing and self-deception. A life of action at last became impossible, so fixed had become their abnormal habits, and under some strain which would have meant nothing to a normal individual, a mental breakdown occurred.

Phophylaxis.

The physician and the teacher have a grave responsibility in their relation to the child. If the physician can recognize the early symptoms of a mental collapse as he does the early symptoms of a physical breakdown and if he can instruct the parent and the teacher how to manage children who are on the verge of a mental breakdown, many children can be saved from the blighting curse of insanity and many a home can be spared this most awful of sorrows. Not only the children of neurotic parents and those who have a bad mental heredity, but any child who shows a disinclination to take part in the healthy sports of childhood, or shows a falling off in his school work, should be examined, and, if possible, the cause of his lack of interest and the cause of his falling off in his work should be ascertained. The fact should be recognized, too, that, at times, retardation may be no more of an evil than precociousness, and that while retardation may only lead to a slowness of progress precociousness, at times, may develop into insanity or extreme dullness. Defective sight and defective hearing, bad breathing due to adenoids, or any physical defect should be

remedied. The school life of many a child has been made burdensome and his adequate preparation for life's work has been seriously impaired by physical defects which could have been remedied so easily had proper care been taken at the right time.

If a child is seclusive, shy and sensitive, if he is easily tired, irritable, nervous, has persistent headaches and takes no interest in the ordinary pursuits of childhood or shows a falling off in his school work, it is often best to take him out of school, for these are often the premonitory symptoms which frequently lead to a precocious dementia. A short mental rest may restore him. It is best, if possible, to interest him in manual work. Let him work with his hands and put aside books. Farm work is ideal in such cases under proper supervision. At times, agricultural and mechanical courses which are now being given in many colleges, are well worth while in such cases. If the mental rest does not restore the child completely, it is a great mistake to push him through school or college. His family should be satisfied for him to become a wage earner with his hands. Many are not fitted for higher education and there is always a place for skilled manual labor. It is an immensely poor investment to gain a diploma at the cost of a wrecked mental or physical organization. From my observation of cases of dementia praecox, I think that many have been ruined by pushing them through school and college who could possibly have been saved had the early symptoms of a mental breakdown been recognized and had these warnings been heeded.

Puberty is the crucial time in the life of the child and this is often the time when many defects develop. At this time the child becomes a new being and every fiber of this new being pulsates with life and vigor. He does not understand his new sensations and hardly knows how to adapt himself to the new world which has now opened up to him. Parental restraints are set aside. Self-consciousness and self-criticism

are marked. The youth is moody, introspective and broods. "Anxiety to do right exhausts the energy that should go to action. Trifles are augmented to mountains or debate with one's self as to what is right is carried so far as to paralyze action." Such an instability occurring as it does coincidentally with the ardous requirements of school life is too much for many children, and frequently the combined demands on the physical and mental strength at this time cause a mental breakdown. The normal child is able to weather the storm unaided —the mentally unstable, unless a helping hand is extended, succumb, and either spend their days in an insane hospital or are able to take only a small part in life's work. The opportunity of the physician is especially great at this period. The sexual question should be robbed of its mystery, thus preventing the vague fears and surmisings which have pestered the soul of many a boy and girl, and, at times, have even been their undoing.

In conclusion, then, children should first of all be made as nearly bodily perfect as possible, but the guiding and controlling of that body should not be neglected if we are to have "fine human beings." In every way possible self-reliance and self-control should be taught and above all, children should be taught to do things rather than to think of doing them. It is never wise to get into the habit of avoiding difficulties, but it is always best to meet everything that comes up in life with decisive action. The habit of decisive action can no where be better obtained than on the play-ground where the boy has to think and act quickly. For this reason, if no other, the play instinct should be cultivated. Wise municipalities are beginning to recognize as never before the value of play-grounds and this is a very hopeful sign for the youth of the future.

The child will never come into his own, however, until the father comes to realize that he is not only "something better than his dog; a little dearer than his horse," but that he is the greatest of all gifts, and his proper bringing-up, physically and

mentally, is of as much importance, or more importance even, than the accumulation of stocks and bonds. And, again, the child can never come into his own until the mother shall realize, as did Cornelia of old, that the child, God-given, is the most precious of all jewels—incomparably more valuable than precious stones, and his proper care and development incomparably more important than the affairs of all the clubs in Christendom.

THE GRADUAL REDUCTION VS. THE HYOSCINE OR QUICK WITHDRAWAL METHOD IN THE TREATMENT OF THE MORPHINE HABIT.

W. C. Ashworth, M.D., Greensboro.

The history of opium using in some form dates back almost from time immemorial. The original home of the poppy was in the Valley of the Nile, and the use of the drug antedates by several centuries the earliest Egyptian civilization. In the Odyssey Homer mentions a mysterious drug that was sent to Helen of Troy, and we have reason to suppose that he refers to opium. It is said that Hippocrates, the Father of Medicine, recommended opium for his patients, and we are told that the ancient priests indulged in its use, being very enthusiastic as to its value to the world. They believed that the opium led the mind into the realms of the Spirits and that the sleep following its use was a bridge to connect the mortal world with the home of the gods.

There are many curious legends concerning the discovery of the effects of opium. One of them has it that an Egyptian prince was lost on a hunting tour, and, becoming exhausted, he was carried to a hut and placed on a bed of poppy leaves. There he slept for two days, finally rousing with unusual vigor, mentally and bodily. This story seems to have been credited and to have formed the basis of many others concerning the medicinal value of poppy leaves, which appealed to the people as being a remedy direct from the hand of the Deity.

Morphinism is, however, a modern disease, and threatens to be one of the most serious menaces accompanying 20th century civilization. Neurasthenia and brain storms are new differentiations of nervous defects incident to the times, and morphia is the new solace which gives temporary relief, while masking the real condition and increasing and intensifying the trouble.

But close on the realization of the danger that lurks in the veins of the poppy came the demand for remedial measures in the cases of those who had succumbed to the seductive poison; and morphinism and its treatment is a subject that calls for the conscientious consideration of every physician who handles the drug today.

The literature on the treatment of drug addictions is so meagre that I will be compelled to speak largely from the experiences of my calling, which has caused me to be almost constantly associated with this class of patients for a number of years. I have sat at the same table with them; I have watched at their bedside, day and night; I have taken part in their recreations; I have listened to their histories and received their confidences, and studied their characters asleep and awake. The result of several years of close, daily associations with these men and women is an overwhelming amount of evidence in favor of the theory that morphinism is a disease rather than a voluntary vice.

The invention of the hypodermic needle by Pravoz in 1865, and the introduction of its use by physicians in the French army, inaugurated a new era in dermatic medication.

One of the first and most serious phases of morphinism with which we have to contend is the profound fascination of the needle. In most cases the rapidity and certainty of its effects without unpleasant consequences leaves a mental impression not easily effaced. The restful calm which follows the prick of the needle is both psychological and physiological in its effects. It is now a recognized fact that there is a veritable needle mania, demanding that drugs be taken in this way. There is a confidence on the part of the users that the power of the drug will be increased and the action more certain if taken by means of the needle.

Some cases of needle mania are very interesting. I have had patients beg me for the needle prick, knowing at the same time that no effect other than psychic would be produced. I

have seen these patients prick themselves with rusty needles that had been discarded as worthless.

The craving for morphine is more persistent and difficult to overcome than the desire for whiskey, and the effects of the drug are far worse upon the psychical and mental organization. The higher the brain culture and development, the more certain and persistent are the disastrous effects of morphine. The early use of morphine, and sometimes its continued use for years, may exhibit but little physical impairment in the habitue, but in all cases the will and moral forces suffer from the beginning.

Morphinism is classed by some authorities as a form of insanity, and certainly the use of the drug gradually leads to disease of both the brain and nervous system. The constant narcotism of the higher brain centers impairs their integrity and destroys their normal activity. My observation is that when the craving for morphine becomes serious and imperative during the withdrawal of the drug, the indications are unmistakable of serious and possible permanent impairment.

The fascinating physiological action of morphine, which enables the nervous and confused brain worker to regain his mental clearness and self possession after taking a single dose of this drug, creates a demand for its use that threatens the highest moral and mental forces of the times. One dose will enable the over-worked, worn-out-physician to take up the labors of his arduous profession with new energy and enthusiasm for the time being, but alas! the effects of the one dose do not suffice for long and it must be repeated again and again, until the man, who thought to simply be tided over a crisis in his work, finds himself in the toils of the enslaving tyrant.

The extent of drug using is appalling and far beyond the imagination of the general practitioner. There are many causes assigned for the increase in the use of opiates, and all, no doubt, contribute their quota to the sum total of results.

That the State-wide prohibition law recently enacted, but

poorly enforced in most localities, is contributing much to the inordinate use of drugs cannot be denied. It is apparent to the most casual observer that the whiskey now used by most whiskey drinkers is of very inferior quality, and as a consequence the injurious effects are more pronounced. The nervous system of the consumer of the cheap chemical whiskies is soon wrecked; therefore the transition to the use of drugs is easy and rapid. I think I am safe in saying that fully 80% of all drug users give a frank confession of having used whiskey to excess. The unfortunate result is natural and the reason obvious, when we take into consideration the fact that there must come a time in the history of every man who drinks whiskey to excess when the whiskey fails to satisfy the abnormal craving for artificial stimulation.

Just here I wish to utter a word of warning to physicians against the common practice of administering morphine to their inebriate patients. The nervous system of the intoxicated patient is abnormally sensitive to morphine, and it is a very easy matter to supplant the whiskey habit by producing a case of morphinism.

Without doubt another important factor contributing in no small degree to this widespread disease is the strenuous life necessary to meet the increased cost of living. It seems that almost numberless people must resort to opiates and stimulants to keep up their flagging courage and energy.

Authorities differ very widely as to the best course to pursue in the treatment of the drug habit, but it is generally conceded that the treatment should be essentially eliminative in its nature rather than sedative. Opiates which check the secretions should be avoided as much as possible. One of the first requisites in the successful treatment of morphinism is to recognize that it is a disease. Unnecessary as this statement may seem, we find many who do not believe it today. It stands to reason that the doctor who starts with the belief that his patient has no disease is not likely to effect a cure.

To find a substitute drug which will completely and safely relieve the discomfort and uneasiness following the withdrawal of morphine is the dream of the credulous physician and the boast of the charlatan and quack, but so far it is unrealized. The action of hyoscine on a highly sensitive, irritant brain may produce disturbances and mental conditions of great danger. Like chloral, the pleasing narcotism and sleep which follows its use may develop congestions and irritations of a most serious nature. It certainly is a very toxic drug, and its peculiar action should be recognized in all confused cases.

My experience with hyoscine leads me to believe that that method of treatment is rather noted for its quick cures and correspondingly quick relapses. The weakened nerve centers call for prolonged tonic treatment rather than the sudden shock incident to the sudden withdrawal or hyoscine method.

The temporary cure of the morphine habit is usually a simple matter if the patient is confined and hyoscine is administered, but the permanent cure of the habit by this method is a very rare occurrence, as those experienced in this line of work will admit. Statistics on the result of the treatment of the morphine habit are useless unless they show permanency of results, and I have rarely seen those that did when the hyoscine method was employed.

Another objection to the hyoscine method is the fact that nearly all morphine users are borderland patients mentally; consequently the use of hyoscine is contra-indicated from this fact alone. The reconstruction of the patient's will-power and self-control, which is the sine que non of a permanent cure, cannot be accomplished by the hyoscine method. The best possible opportunity for such reconstruction is offered by the gradual withdrawal method. We are not re-educating self-control when we force oblivion on the patient by the use of hyoscine.

I use the gradual reduction method of treatment, coincident with the administration of strong reconstructive tonics, which

enables me in most instances to withdraw the morphine with only a negligible amount of discomfort. In fact, the discomfort is so slight that the patient is seldom aware when the drug is entirely withdrawn. The reduction is made in a very tentative manner, and never so rapidly as to produce any undue shock to the nervous system or circulation.

The rapidity of the reduction should be regulated by the tolerance of the individual as manifested by the withdrawal symptoms. During the period of reduction the patient should be safeguarded but not incarcerated. I do not believe in treating the average morphine patient as an irresponsible, but rather in securing his confidence by giving him mine and the assurance that I will do all in my power to help him make the fight and prevent any serious suffering.

The gradual reduction method offers the greatest advantages for the building up of the broken down nervous system and the re-education of the deficient will power and self control. It requires time to drill into the narcotic mind of the patient that it is possible to live without artificial stimulation. Extensive experience in the treatment of the morphine habit and close study of the experience of others convinces me that the patient should be backed out of the slough of his habit in very much the same manner that he entered, namely: rapidly or moderately, according to the way in which he became addicted to the use of the drug. The immediate withdrawal of the morphine shocks the nervous system so severely as to permanently weaken it, and consequently the subsequent self-control of the patient. For this reason I advise the withdrawal of the morphine along the same general reverse lines as the periodical increasing dosage of the drug was acquired.

No individual can be permanently cured of the morphine habit without active, scientific help. I believe that the dosage should be lowered to a certain point and held there for several days without attempting further reduction until the patient is accustomed to the lessened amount. In this way the with-

drawal symptoms are usually limited to the first few days of reduction. I always advise a sharp reduction to start with, as most patients are taking a great deal more morphine than they need to prevent unbearable symptoms.

In the average case the total withdrawal should not be undertaken until the patient is down to a very small daily amount, say about 1-16 of a grain in twenty-four hours. I always give the last dose at bed-time when the patient is only taking one dose daily.

The morphine should be given hypodermatically, regardless of the former method of taking it by the patient, and combined with each dose should be given strychnine, sparteine and such other stimulants as will best support the circulation.

To promote sleep during the time just prior to and following the withdrawal of the drug I use bromide of sodium, hot spinal formentations, electric light baths, veronal sodium, trional, etc., but never use chloral. For the intercurrent nervous symptoms and the pain incident to the withdrawal period aspirin, gelsemine, vibratory massage, hot baths, etc., have proven of marked benefit.

Give an abundance of purgatives throughout the treatment and less morphine will be required. Many of the withdrawal symptoms are the result of auto-intoxication produced by the enervated condition of the bowels and stomach as a result of the morphia.

The diet should be bland and unirritating, especially during the final withdrawal period. Often the craving is greatly increased by acute indigestion produced by overeating. A diet should be outlined that is adequately balanced and absolutely free from food leaving much residue or that is apt to cause fermentation.

Both Erlenmeyer and Jennings are strong advocates of the use of bicarbonate of soda for the relief of indigestion during the treatment. In fact Erlenmeyer terms it, "chemical demorphinization."

The symptoms following the withdrawal of the drug are real symptoms, although the patient may exaggerate them. But the physician who fails to realize the positive reality and severity of the symptoms following the withdrawal of morphine will usually fail in the permanent cure of the habit. It is not difficult for him to differentiate between the assumed and the real, because there are so many objective symptoms that may be easily detected.

The central fact to be remembered is that the withdrawal of the morphine is not the end, but only the beginning of the treatment. A long period of building up and restoration must follow before the brain and nervous system can attain the degree of vigor essential to control the neurotic symptoms which appear in the wake of the morphine.

During the reconstruction period the patient should be regarded as a nervous bankrupt. All physical or mental strain should be avoided and cheerful surroundings with light mental diversion are necessary adjuncts to the regular treatment. The patient should not be allowed to return to his customary occupation for several weeks after the withdrawal of the drug.

I have given only a brief resume of the treatment to be used in the relief of morphinism, as it must in all cases be modified to suit the temperament and idiosyncrasies of the patient. Before accepting a patient the physician should have it plainly understood that he is to have absolute control of the patient throughout the treatment, also that he does not intend to incarcerate the patient, but that certain restrictions will be imposed, which, if disregarded, will relieve the doctor of all responsibility in the case.

There is no royal road to the cure of the morphine habit, and there will never be any treatment which does not entail a certain amount of discomfort on the part of the patient. When you hear of a case of morphinism cured without any suffering, you may be assured that the patient was surrep-

titiously taking the drug during the "cure" and is most likely taking it now.

This is an old subject in many respects and, threatening as it does the very flower of culture and morality, it is one that cries for our earnest attention. The successful annihilation of this dread monster is a difficult question to solve.

> What then? shall we sit idly down and say
> The night hath come; it is no longer day?
> The night hath not yet come; we are not
> Quite cut off from labor by the failing light;
> Something remains for us to do or dare;
> Even the oldest tree some fruit may bear.

SOME PERSONAL OBSERVATIONS UPON THE ADMINISTRATION OF ANESTHETICS.

C. O. Abernethy, B.S., M.D., Anesthetist to Rex, St. Agnes, and Leonard Hospitals, Raleigh.

During the past five years it has been my privilege to devote almost my entire time to the administration of anesthetics, and the more I study the subject the more I am convinced that the majority of us do not attach enough importance to this branch of our profession. Some surgeons and many internal medicine men look upon a competent anesthetist as an unnecessary assistant. They really feel sorry for a man who has the temerity to spend his whole time in doing such minor work in the field of medicine. The anesthetizers are not the ones to be pitied, but rather the patients who are anesthetized by inexperienced men. And I believe the day is not far distant when the patient will demand an experienced anesthetizer as much so as an experienced surgeon. How often has it occured in past years that an experienced surgeon has been called to perform an operation where the anesthetic was given by an inexperienced person. This is a bad policy when it can possibly be avoided. It is a fact that most surgeons are poor anesthetizers, and therefore in each community where operating is to be done some one man should be trained to give anesthetics.

We all want our patrons to have the benefit of an experienced surgeon, yet we seem to be perfectly willing to submit them to novices where an anesthetic is concerned. One is as important as the other as far as the actual operating is involved.

In fact after the patient enters the anesthetizing room the anesthetizer has a greater responsibility than the surgeon. The anesthetizer has the individual peculiarities of the patient to contend with before complete anesthesia is established; he must attend to all stimulation and see that the pulse and res-

piration are kept as near normal as possible after complete anesthesia, and still keep the patieint from straining or moving and retarding the progress of the operation. The surgeon has the pathological tissue to remove and close the wound upon a human body which is lifeless so far as his work is concerned. I am afraid that some surgeons are too quick to demand that nothing should happen to interfere with their work. They do not seem to realize that the anesthetizer is doing everything he can for the good of the patient, and the habit of insisting that the anesthesia be profound regardless of how the patient is doing is unworthy. The operator must understand that the welfare of the patient is at stake, and should not continually be nagging the anesthetizer, for some may have their judgment impaired by this.

The danger in an anesthetic is great even where the utmost care is observed, yet we see an occasional case where a nurse or some one equally as inexperienced is giving chloroform when we know that it is one of the most dangreous drugs we handle. These cases are generally those that would be classed under the head of minor surgery, the surgeon thinking he can do the work and at the same time superintend the administration of the anesthetic. Truly it is minor surgery if we take the classification of a noted surgeon who says: "Minor surgery is that branch of the art which is done by a minor surgeon." When a man tries to look after an anesthetic and at the same time do any kind of operation he is in grave danger of neglecting the one or the other to the detriment of the patient. I know there are cases when this is necessary, but they are extremely rare.

A patient takes the anesthetic better if the preliminary preparation usually carried out for an operation is observed. This tends to lessen the ill effects during and after the administration. This and the selection of a competent anesthetizer is the main responsibility that the surgeon has as far as the anesthetic is concerned. The surgeons are realizing this more fully

and the result is that the mortality and suffering is lessened. The eye, ear, nose and throat men, it seems to me, should, as a general rule, give the subject of general anesthesia more serious consideration than they are accustomed to. They seem to think because the operation does not consist in opening the abdomen and handling the intestines that the preliminary purge and rest and other preparation are not necessary. Again they seem to consider because the operation is a short one that any anesthetic is all right. Yet we hear of cases reported where a child has died from the effects of chloroform given for a simple tonsillotomy, and where adults have had fatal results after an anesthetic given for the simple procedure of a laryngoscopic examination. Of course there are many cases daily that have no trouble from the anesthetic, yet the few who do should sound a warning for more care in the preparation and the selection. Again the custom of promiscuous anesthesia in one's office, generally followed by these same specialtists is a very dangerous procedure. We should never lose sight of the fact that any patient is liable to die under an anesthetic, and it isn't a very pleasant advertisement to have a patient die in one's office. I admit that this does not often happen yet an occasional fatality has been reported which could probably have been prevented with the proper anesthetic and assistance at hand. A hospital whenever accessible is the best place to administer an anesthetic.

It has been said that practically all deaths occuring on the operating table are due to the anesthetic. I believe that we can go further and say that many deaths after leaving the operating room are due to this cause. A profoundly anesthetized patient is slow in eliminating any poison and the longer this powerful drug stays in the system the more danger is there of bad effects. The ideal plan is to have the patient actively reacting upon leaving the operating room. This is not usually difficult if the anesthetizer gradually lessens the degree of anesthesia as the operation is being finished. It is

necessary, therefore, for the anesthetizer to be familiair with the different stages of the operation and to know about how much time will be necessary to complete it. The idea that the anesthetizer should be shut off behind a screen and not see the field of operation is wrong—just as much so as if he should watch the operation and neglect his anesthetic. He must know what stage of the operation is being performed, otherwise he can not intelligently administer the anesthetic, because different stages of the operation require different degrees of anesthesia. For instance, it is always a good plan to remove the anesthetic during the dilatation of the sphinctor ani, otherwise the deep breaths taken at this time will cause too deep an anesthesia. And the same general rule applies in operations upon the penis.

It is not my purpose here to compare the different anesthetics, but I wish to say a few words concerning ether and chloroform. We have heard much in the past about the contraindications of ether. I am beginning to believe that ether is rarely contraindicated where an operation is indicated, except probably in acute bronchitis and acute tuberculosis of lungs. In practically all other conditions I believe ether is the anesthetic of choice. It has been definitely shown that chloroform does more harm to the liver and kidneys than ether, and that children bear chloroform badly. It has been shown even in labor cases that ether is the anesthetic of choice and that chloroform is contraindicated in eclampsia. I wish to emphasize this point because I can see no excuse for using chloroform in operations at childbirth. It seems to me that practically everything in this class of patients indicate the use of the safer anesthetic. Chloroform is more dangerous than ether in practically all operations and should not be used except in very rare cases. In our clinic we have used chloroform in only two cases during the past year. Both were in operations for amputation of the leg for senile gangrene. One, a woman eighty years of age, and the other a man seventy-five years of age. Chloroform

was selected here because we considered there was some danger in ether raising the blood pressure enough to dislodge a clot and form an embolus. Both cases had uneventful recoveries.

Ether pneumonia, so-called, has been suggested as being a contraindication to the use of ether. I think this an extremely rare condition, especially in the South. We have had two cases of pneumonia following operations in our clinic. One was a case of suspension of the uterus in a woman twenty-five years of age who had driven twelve miles through the country on a winter day, and who had a slight elevation of temperature three hours before the operation. The other was a negro woman with pus tubes with apparently no reason for the pneumonia. One died and one recovered. I believe the practice followed in most hospitals of removing the heavy underwear the patients are accustomed to sleeping in and putting cotton night shirts upon them is responsible for many of the post operative pneumonias.

In selecting a method of administering ether the less complicated the apparatus seems the better. I see no reason why a few layers of gauze over an ordinary inhaler, or just laid over the nose and mouth is not all that is necessary . There has been much said about inhalers for mixed anesthesia. I know of one case where an anesthetizer turned the wrong valve while trying to use one of these complicated inhalers with an almost fatal result. The method we use is to place a few layers of gauze over the face or over an ordinary inhaler and drop the ether direct from the original can. The only disadvantage in this method is that it takes a little more time to produce complete anesthesia. But the advantages far outweigh the disadvantages.

The preliminary drugging before going to the anesthetizing room is not only unnecessary but often harmful. The claim that it aids in eliminating the fright and post operative nausea has not proved to be true in our experience. I much prefer the patient to come to the anesthetizing room clear-minded, for

then a few words of good cheer and reasoning has a more quieting effect. The anesthetic lessens the power of the patient to eliminate these drugs and a bad effect is often seen. The less drugs before and during the operation, unless there arises positive indications for them, appears to be the best plan. We have tried many of the drugs recommended and without exception discarded them. I wish especially to speak of the use of chloretone before operations and to cite a case. A young man with an interval appendix was given chloretone the night before and the morning of the operation. We noticed the shallow breathing during the anesthesia and gave him very little ether. He had scanty and bloody urine after the operation and died on the third day, due to what we believe to have been the effects of the chloretone. We occasionally give morphine and atropine during the operation when indicated, but make no routine practice of it. If any stimulant is demanded the most efficient in our hands has been normal salt either by rectum or under the skin.

The following method of anesthesia is the one that we are now using: Have the patient come in without any preliminary narcotic, but having been given water freely. Let no appearance of hurry or excitement take place, but very quietly examine the heart and inspire confidence in your ability; cover the eyes with rubber tissue over which is placed damp cotton; place from twelve to twenty layers of gauze over nose and mouth and begin to slowly drop the ether from the original can; if there is any feeling of suffocation complained of, remove the gauze and allow two or three breaths with nothing over the mouth. This will consume some time but will allow a great deal of comfort; after the odor has become more tolerant the dropping can be more rapid. After the patient is relaxed turn the head to one side. This will prevent the tongue and jaw from falling backward, and allow any mucus that might collect to run out the corner of the mouth. If the mucus still collects allow more air and less ether and, if necessary, let

the patient cough. When the preparation is finished roll the table in the operating room where the surgeon is waiting. Be sure that the surgeon is waiting for you instead of you waiting for him. During the operation let the degree of anesthesia be as light as possible. This can be regulated by watching the respiration and pulse. I do not think the eye reflex a good index because it is rarely necessary to abolish this. After the operation apply hot towels to the face until the patient wakes.

THE USE OF ANTIFORMIN IN EXAMINING SEROUS PLEURAL EFFUSIONS FOR B. TUBERCULOSIS.

Wm. Allan, M.D., Charlotte.

Osler states that in the majority of instances serous pleural effusion is due to pulmonary tuberculosis; the determination of this matter has been greatly facilitated by the introduction of a commercial alkaline hypochlorite solution known as Antiformin. This alkaline hypochlorite solution when properly used will digest everything in the effusion except the acid-fast bacilli.

During the past few months I have had occason to apply the Antiformin method to the following four cases of pleural effusion:

Case 1: B. B.; white; male; age, 6; sent to the Presbyterian Hospital, March 16, 1911, for diagnosis. Family history: the mother died of pulmonary tuberculosis three days ago. Past history: negative. Complains of the present illness for the last three weeks. Case becomes sleepy and stupid every afternoon, with some fever, and vomits after he goes to bed at night. On examination the case showed an enlarged right tonsil with gland at angle of the jaw on that side. Approximately the lower half of the right chest, back and front, showed dullness, diminished breath sounds and vocal fremitus, absence of tactile fremitus, with inconstant dry and moist rales above this area. Evening temperature on day of admission was 99.8; thereafter normal. Had a very infrequent throaty cough without sputum. On introducing a needle between the 8th and 9th ribs in the posterior axillary line, only an ounce and a half of fluid could be obtained; this fluid formed a firm coagulum on cooling and showed bacillus tuberculosis after being digested and centrifuged. Von Pirquet tuberculin reaction positive. April 9, the case was tapped again but no fluid found.

Case 2: N. A.; white; male; age, 23; native of Greece, hav-

ing been in America for 14 months. Seen April 6, 1911, with Dr. Nisbet. Family and past history negative. Is seeking treatment for chronic headache. On examination showed the typical signs of pleural effusion on the right side, extending up to the 4th rib in front, and up to the 6th rib behind. About eight ounces of fluid were withdrawn, allowed to coagulate, and examined. After a search of several hours ten acid-fast bacilli were counted.

Case 3: Mrs. K; white; female; age, 26; seen with Dr. Turvey May 23, 1911. Family history negative. Has had what she calls rheumatism since she was 17 years old; this joint trouble started in the fingers, going thence to the elbows, shoulders, hips and knees; then her ankles swelled. Present illness dates from September 1910, when menses ceased, although she had had diarrhea since the spring of 1910. This diarrhea has been continuous since February, 1911, without pain, generally involuntary, the stools being liquid, and at times containing a little blood and mucus, the latter probably due to small hemorrhoids. Complains also of insomnia, slight dyspnœa, constant desire to urinate, and leucorrhea. Appetite good. Has been in bed most of the time for the last six months. No cough, no fever. Loss of thirty pounds in weight. On examination case showed marked emaciation and anemia, edema of the ankles, enlarged stiff knees and elbows, pellagra eruption on back of hands and on face dating from January 1911. There was fluid in the peritoneal cavity. The chest showed marked asymmetry. The left side was bulging, and motionless during respiration; the circumference of the left side exceeded that of the right by two inches; there was flatness, absence of breath sounds and fremitus all over the left side, except above the clavicle, where Skodaic resonance, with diminished breath sounds could be elicited. Cardiac dulness extended to the right anterior axillary line; apex in 4th interspace two cm. to right of sternum; sounds normal; rythm regular; blood pressure low. Urine and feces negative; blood showed

only secondary anemia. Two quarts of fluid were withdrawn and examined without finding any acid-fast bacilli. June 2, 1911: Insomnia very much better; hands improved under picric acid dressings; three quarts of fluid withdrawn without any serious result; heart has shifted to its normal position.

Case 4: E. T.; negro; male; age, 20. Seen June 15, 1911, with Dr. Engle. Family history and past history negative. Complains at present of increasing weakness, dyspnœa on exertion; loss of weight; slight cough and expectoration, with chilly sensations. Temperature 99.4; pulse 94. On examination showed the usual signs of pleural effusion reaching to the third rib in front and to the fifth rib behind. Two quarts of fluid were withdrawn and examined with negative results. Dr. Engle reports sputum negative. Von Pirquet reaction positive. No laboratory findings will be allowed to interfere with the clinical diagnosis of pulmonary tuberculosis in this case.

In the use of Antiformin it is absolutely necessary to exclude contamination with acid-fast bacilli other than the bacillus tuberculosis. It was found, for instance, that our laboratory bottle of normal salt solution, when centrifuged, and the sediment fixed to the slide with egg albumen, showed acid-fast bacilli in great numbers. All glassware should be flamed or kept in strong chromic acid. In examining pleural effusions sufficient Antiformin has been added to make 10% solution, or the coagulum has been placed in a 15% solution, heat applied until digestion is complete, the sediment collected by an electric centrifuge and washed twice with water or salt solution which is free from acid-fast bacilli. The sediment is then fixed to the slide with a small quantity of egg albumen and stained in the usual way.

No conclusions can be drawn from four cases. In the first and last cases reported, a positive clinical diagnosis of tuberculosis could be made. The former showed bacilli in the effusion, the latter did not. The second case was one of

effusion coming on insidiously and a positive clinical diagnosis could not be made at once; finding bacilli in the effusion settled the diagnosis within twelve hours. The third case was clinically not tuberculosis, and bacilli were not demonstrated in the effusion.

THE PROPHYLACTIC AGE.

J. M. Allhands, M.D., Cliffside.

In ancient times over-population was kept down for centuries by constant warfare between nations, or between different tribes at home. With the dawning of the Christian era, and the steady growth of civilization, people began to realize that war was cruel and should be a thing of the past. But disease has been active enough to make up for war, and today we do not spend most of our time killing and being killed, yet the death rate, the world over, probably exceeds that of the age of barbarism.

We now consider war a brutal and unnecessary procedure and nations are seeking for means to settle their differences, without destroying their neighbors, or being destroyed themselves. The cost of life and porperty by war has become too burdensome, and there is a strenuous demand for universal peace. The idea of living our allotted time of three score years and ten, is an attractive one, and while our universal peace makers are holding annual sessions at "The Hague," and others are busy preparing for war, there is a class of men who are scientifically and positively working for the prolongation of life.

During the past decade or so, the study of sanitation and preventive medicine has done away with a great deal of foolish superstition in reference to the true cause of disease. Scourges and epidemics have ceased to be regarded as a direct visitation of the wrath of God, upon a sinning people; and the scientist has demonstrated that in most cases the visitations are due to the careless and improper handling of agencies under human control, and our utter disregard of the simple laws of hygiene and sanitation. These facts, with those supplied by the preserving statistician, showing that the financial cost of disease far ex-

ceeds that of war, are awaking the people to the necessity of reform, and the observance of the simple laws of prophylaxis.

We are so accustomed to the inroads of preventable disease that they pass by unnoticed. We know that some neighbor's son died during the past winter from pheumonia, that another neighbor was taken last summer by typhoid fever, that another's daughter, after making a brave fight for months, finally succombed to the dreaded disease—tuberculosis. Had these deaths all occured in one family the unusual bereavement would have called forth more than the customary expression of sympathy. But happening as they did, we are quite accustomed to their occurrence. Yet it is startling to think that every year as many people in our country as go to make up the whole population of Florida, die from ignorance or neglect of known measures of prevention of disease. Every year preventable disease and accidents destroy American lives exceeding the number lost in battle in all our wars since the Declaration of Independence. Every three months they destroy American lives exceeding in number the combined forces of the Army and Navy of the United States.

The United States Government has passed stringent laws pertaining to pure food. Nearly every State and city has passed similar ones with the idea of providing for us, some safe guards against eating poisonous and adulterated foods. Laws have been passed and are being enforced, protecting from an early demise, the greatest product of our country-infants—the output of which is not lessened by our hard times, droughts or famine; laws compelling the dairyman to refrain from using the town pump, or "Old Oaken Bucket at the moss covered well," as an adjunct to a full milk pail. Instead they are now politely and forcibly urged to keep their person, cows, and premises clean with this excellent fluid, which laws are hard on the dairyman and undertaker, but soothing to the babies.

Science and common sense obliterated yellow fever, and have greatly reduced malaria by the simple process of doing

away with the breeding places of the mosquitoes, which spread the disease by inoculating with its virus the well, with the germs drawn from the blood of those already afflicted. The Bubonic pleague which for centuries has caused millions of deaths in India, is losing virulence simply as a result of the wholesale destruction of rats, which carried the germs from section to section. The discoveries of Neisser, Wasserman and Ehrlich have done much towards recognizing and preventing the spread of venerial diseases; and many other diseases are being stamped out or lessened in their severity by prophylactic measures. The most prolific bearer of disease is the common house fly. Each of its fuzzy legs can carry around for your ingestion, thousands of fatal germs, yet we have in the past simply resented its presence, because it merely interfered with our comfort, or used our dish of soup for a swimming pool. We now know that every one of these obnoxious pests may be carrying a fatal message for you or me. "The motto "God Bless Our Home," should be removed from its frame over the fireplace and replaced with the simple effective and instructive one of "Swat the Fly."

The Anti-fly campaign of the American Civic Association of Washington, D. C., is a most worthy undertaking for the sake of humanity. Never before has there been so sane and sensible movement against any pest, or as universally agitated by the press, from the leading magazines and large municipal dailies, to the country weekly and village sheet, as there is today being prompted against the so-called typhoid fly. And never before was the public so thoroughly aroused. May its promoters and their many lieutenants keep their toes to the firing line until they win the fight.

The Anti-Spitting ordinances, prohibiting expectorating on the sidewalks and in public places, the sanitary drinking fountains in public schools, parks and public gathering places, milk commissions for providing pure milk for infants, visiting nurses associations for the benefit of the sick poor clean-up

days for interesting the public in disposing of waste, and many other philanthropic movements that space will not permit enumerating here, are accomplishing much to lessen human suffering, and prevent disease in crowded towns and cities.

Dr. W. C. Abbot of Chicago, says: "Clean up, clean out and keep clean." This is a most practical and significant injunction, an indispensable adjunct to preventive medicine. Public health is public wealth and the sign of weakness is not a dollar sign by any means. The way to prolong human life is to educate the masses of the people to correct standards of living, and to the proper means of disease prevention.

Upon the recommendation of the president, there has been introduced in the United States Senate, a bill providing for a department of health whose province and duty it shall be to foster and promote all matters pertaining to the conservation and improvement of the public health, and to collect and disseminate information relating thereto. The vital importance of this measure can scarcely be overrated.

History tells us that in the early days when England and Scotland were continuously at war, the Scotch posted sentinels on the hills along the border, whose duty it was to give warning of the advancing English armies. This they did by means of watch fires. When the foremost one saw the advancing foe he lighted a great pile of brush on the top of the nearest mountain. Sentinels on the neighboring hills did the same. In a few minutes after the first signal had flared up, there was a blazing torch on the top of every elevation, giving warning of the danger to the Scottish fighting men, for miles around. The monthly bulletins of the State Boards of Health, the numerous published recommendations of the country, city and town boards, and the free and too oft unheeded advice of the patient and long suffering family physician, are some of the signals of warning, and the man who heeds them, is like the Scottish soldiers forewarned and forearmed.

"The Austrians were beaten," said Napoleon, "because they

did not know the value of five minutes." If the Austrians had used those precious moments rightly, then, not they, but the "Little Corporal," would have suffered defeat, and there would have been no conquest of Europe, no Emperor of the French.

Time is no less valuable in fighting disease, than it was to the Austrians. The day before something could have been done, the day after, all is lost. How true that is in matters of health.

It has been found preferable to prevent crime by preventing the raising of criminals, than to rectify a crime committed, or reform the criminal. The prophylactic measures of providing free play grounds, free baths, free amusements of many kinds, to keep the youth busy at clean, healthy exercise, when without these they would possibly be preparing for early admission to the reform school, as a preparatory course to the penitentiary.

The wise business man is he who employs his lawyer to prevent litigation, rather than to litigate. The manufacturers who yearly pay immense sums to indemnity companies, for protection from damage suits from injured employers, are beginning to realize that it is more economical, if not more humane, to provide more and better safeguards, protecting their employees from injury; the railroad companies by providing steel cars, safety couplers, and block switches are making the traveler safer from injury than he who stays at home.

It has been only a few years—the early 80's—since the fact was discovered that certain diseases were caused by a germ—a distinct germ for such disease. Today, bacteriologists have discovered about one thousand different germs. Many of them are genial, whole souled bodies essential to our comfort and health, many others have no apparent occupation, but just drift from one portion of our anatomy to another, like the hobo who winters in the South and summers in the North. Some are like the hobo who may be a vicious character and we do not realize it, while others have been definitely located as carriers

and breeders of disease, such as small-pox, yellow fever, typhoid fever, diphtheria, and other malignant diseases. This knowledge has caused the death rate from such ailments to be lessened in some instances as much as fifty per cent, and in the case of yellow fever nearly one hundred per cent. Life insurance company statisticians claim that within the last few years, the many prophylactic measures begun, have caused the expectancy of life to increase five per cent, and undoubtedly as scientists increase this knowledge of bugdom and the public appreciates more fully the joys and comforts of prophylaxis, this expectancy will be materially increased. Most of us daily take into our system numbers of disease bearing germs, and do so safely because nature has devised many ways to protect us. The saliva constantly pouring into your mouth is germicidal; the net work of hairs lining your nostrils act as a sifter; the mucous membrance of the nose is germicidal; the blood furnishes the material from which the juices of the body are made. Healthy juices are germicidal, so healthy blood results in healthy juices. The two thousand feet of inner lining of lungs are covered with living cells whose function is to destroy germs. The gastric juice formed in little glands in the mucous membrane of the stomach is a germ destroyer. Perhaps a germ may escape all of these barriers and enter the blood. Then comes the last battle of nature. The white blood corpuscles begin cannibal warfare by eating up the invading germs. Metchnikoff explains that blood manufactures an element called opsonin, which acts as a stimulant, or appetizer to the white blood corpuscles, and promotes their desire for germs.

Nature has done her share towards your protection. Healthy blood with healthy opsonins is essential. Let your opsonic index be lowered, and the germs will be victorious, as in the case of suppuration, the so-called pus is simple white blood corpuscles slain in battle by a superior force of disease germs. So disease can not affect a healthy body in which vital resistance

is maintained by hygienic modes of living. Hence the subject of this paper.

A so-called neuresthenic, after having been the rounds, and was told there was nothing the matter with him, drifted into the new doctor's office to see what he knew. After a pretty thorough examination the doctor said in a very professional manner: "My friend, the nucleus of your protoplasm is greatly interfering with your metabolism," and gave him a pink placebo. He was struck with the doctor's wonderful knowledge and got well. Another means of prophylaxis.

It becomes the duty of each of us as doctors, to instruct our families in the simple methods of prevention of disease, and by so doing, we will foster the public conscience and increase the worth of the nations citizens to the nation and to ourselves.

Thanks to the sentiment aroused by a few men and women whose doings and sayings are heralded by the press, and our growing appreciation of what prevention can accomplish, will cause our descendants to label the twentieth century as the *prophylactic age.*

ATYPICAL SCARLET FEVER WITH REPORT OF CASE.

W. H. Anderson, M.D., Wilson.

Since the discovery of antitoxin and the brilliant clinical results following its use in diphtheria, scarlet fever is the most dreaded disease incident to childhood. This is due as much to the mild atypical cases as to the severe cases, for while in the latter the lack of any specific treatment may result in the death of the patient. On the other hand it is frequently the mild atypical case that is responsible for an epidemic which notwithstanding its mild origin may be characterized by the disease in its severest form. The severe case alarms the mother, who immediately sends for her physician, who in turn, has no difficulty in making a correct diagnosis and instituting the proper precautionary measures. The mild case, however, may not be considered of sufficient importance to necessitate sending for a physician and even should this be done he tells the mother the flush is due to the slight fever present, or to the quinine she has already given for the fever, or that the indistinct rash is due to a disordered stomach, the coated tongue to an inactive liver, the angina to a simple tonsillitis, etc. This is not said in criticism of the physician in question, for a correct dagnosis would not have been made in the case to be reported had it not been for the fact that it occurred during an epidemic of scarlet fever. It is just here the danger lies, for at times there is practically nothing to base a diagnosis on until the disease has assumed the proportions of an epidemic with some severe or even fatal cases.

Obviously the difficulty lies in making a diagnosis, for as yet there is no one sign or combination of symptoms invariably present in all cases. Scarlet fever occurs without the initial vomiting, the temperature, angina, rash and desquamation. In

fact, at times, the diagnosis is possible only after a typical case has developed as a result of exposure to an unrecognized case.

In a series of ten cases the most constant and characteristic symptoms were the initial vomiting and the strawberry tongue which occured in all cases, and the most characteristic thing about the tongue was the rapidity of change. The heavy white coating is seen in other conditions as is the red, raw tongue, but in nothing else does the change from the one to the other take place in so short a time. This change usually takes place in twelve hours and is to me the most characteristic symptom of the very mild cases. Fever was present in all cases but one as was the rash, but the latter in several cases was anything but typical. Angina was absent in three cases, but the pharynx was injected to a varying degree in all cases but one. Desquamation was fairly typical in all cases but one, while the lymph nodes were involved in all cases but the three in which there was no angina. Albumen was present in three cases, but did not persist during the convalescence while otitis media was absent in all cases. In this series the cases which exhibited all of the characteristic symptoms ran the severest course although this is not invariably true.

The usual mild case of scarlet fever is characterized by its sudden onset, initial vomiting and temperature ranging from 100° F. to 103° F. The pharynx is reddened and congested while the tonsils may be enlarged. The hard palate shows a punctate redness resembling the skin eruption. The tongue is heavily coated through which coating the enlarged papillae may be seen and usually some angina is present. The rash occurs within twenty-four hours and shows as a punctate redness upon the general cutaneuous surface which is injected to the extent that it resembles a rather decided blush. The rash is more decided on the body than the face, appearing first on the neck and chest. In the very mild cases where the rash is scarcely perceptible it is usually most marked on the inner side of the thighs, the axilla and groin. The pulse is generally ac-

celerated to a greater degree than the temperature would indicate.

By the second day the picture is practically unchanged with the exception of the tongue which has lost its dense, white, felt-like coating and is raw and red with the enlarged papillae showing prominently. This is usually accomplished in twelve hours from the time the change begins. The temperature reaches its highest point in from thirty-six to forty-eight hours and by the fifth or sixth day is normal. The rash begins to fade on the third or fourth day and by the fifth or sixth day may have disappeared, while desquamation begins about the end of the first week. Desquamation may be so slight as to pass unnoticed in exceptional cases. Usually, however, it is one of the most striking symptoms and at times may be the first symptom to attract attention. However slight it may be over the rest of the body it is usually characteristic over the hands and feet. In the mild cases it is several weeks before desquamation is complete.

The angina is not, as a general rule, of much severity and the envolvment of the lymph nodes is then proportioned to the angina.

Otitis media and nephritis may follow the mildest case of scarlet fever. The ears should be examined as frequently and a urinalysis made as often during the mildest attack as during the severest.

The case of G. S., a girl twelve years of age, illustrates how mild and atypical scarlet fever may be at times. The onset was sudden, characterized by initial vomiting, a slightly accelerated pulse and a faint blush over the body and face. The mother thinking she had some temperature gave a cathartic pill and a dose of quinine. I was called in the next morning and found the patient very comfortable and rebellious against being confined to the bed. There had been no repetition of the vomiting, the faint flush was scarcely perceptible, was evenly

distributed over the body and face and not punctate in character. The pulse was slightly accelerated, the temperature normal, the tongue coated white with no enlarged papillae showing through. The pharynx not injected and no angina or enlarged lympth nodes. An examination of the urine showed no albumen.

The second day the condition was unchanged except the tongue had lost its white coating, was red and upon very close examination showed the papillae slightly enlarged. The appearance, however, would not usually have excited attention. This change in tongue occurred in twelve hours time and the disappearance of the coating was complete. The temperature was still normal and the patient insisted that she never felt better in her life. A diagnosis of scarlet fever was made and the house quarantined.

On the third day the flush had disappeared but having been so slight very little change in the appearance of the patient was noticed. The temperature was normal and remained so throughout the course of the disease. Daily examination of the throat, ear and urine failed to detect anything abnormal.

At the end of seven days desquamation was seen on the tips of the fingers, but the most careful scrutiny failed to detect this process over any other portion of the body. The dead epidermis came off in such small flakes that it could very easily have been overlooked. Throughout the course of the disease, with the exception of the initial vomiting the patient was comfortable, cheerful, slept well, had a good appetite and seemed to suffer from no constitutional symptoms.

Quarantine was strictly maintained toward the public and also the members of the household except a child three years old. The mother was nursing the case and not being satisfied in her own mind as to the diagnosis continued to get this younger child to sleep. She took the precaution to change her clothing and used an antiseptic solution on her face, hands and

hair. However, there was some defect in her technique for on the seventh day, this younger child developed a typical case of scarlet fever which ran the usual course.

This case occuring during an epidemic of the disease was recognized because each symptom was carefully observed as being a possible symptom of scarlet fever. Had it come at any other time it probably would have been unrecognized and would have furnished a starting point of an epidemic.

The same care should be exercised in the quarantine and treatment of the mild forms of scarlet fever as in the more severe type. The patient should be put in a room from which all unnecessary furniture, rugs, carpets, curtains and books have been removed. Free ventilation should be secured at all times for the danger of catching cold is due to the lack of ventilation rather than to too much fresh air. The temperature of the room is kept at one thing and sudden changes or exposure of the patient are avoided as far as possible.

In the beginning of an attack calomel followed by a saline should be given and the bowels kept open throughout the course of the disease. If there is enough temperature, insomnia, or restlessness to demand attention small doses of phenacetine and Dover's powder are usually sufficient. The angina whether mild or severe is treated by first spraying the throat with hydrogen peroxide, then with an alkaline antiseptic solution and finally painted with a twenty-five per cent (25%) solution of argyrol in glycerine. This should be done at least three times a day until all signs of inflammation have disappeared. The nose is also sprayed three times a day with an alkaline antiseptic solution whether there is evidence of rhinitis or not. As a further precaution against otitis media it is my custom to give urotropin four times a day. During the first few days the itching may be relieved by the use of a mild carbolic acid wash. After the fever and eruption have subsided a sanitary bath should be given daily followed by inunctions over the

entire body with lanolin and vaseline, equal parts or carbolized vaseline.

The diet consists of milk, serials, pea soup, bean soup, and fruit. Cocoa is also allowed as is lemonade and grape juice to which an alkaline water has been added. This holds good for the well nourished patient. In a delicate, poorly nourished child, a more generous diet is allowed in which meat is included regardless of the danger of nephritis. The heart is closely watched and at the first signs of a flagging pulse strychnine and whiskey are given.

During desquamation the patient may be furnished with a paper bag as a receptacle for the dead epidermis since most children are interested in assisting the peeling process and burning this removes one source of trouble in ineffective fumigation.

The patient should be kept in bed for at least one week after the temperature is normal and the liquid diet is persisted in for several weeks longer. The mildest cases are quarantined for four weeks. Quarantine is invariably maintained until all desquamation, otitis, rhinitis or pharyngitis have subsided regardless of the length of time. A safe plan to follow is not to allow the patient to come in contact with other children until a month after the symptoms have disappeared. Before the patient is allowed to leave his room he is given a thorough scrubbing with soap and water, special attention being paid to the scalp and four disinfectant baths are given. He is then wrapped in a blanket at the door of the room occupied and carried to a separate room where fresh clothing is provided. These details are mentioned for the reason that the same care and precautionary measures should be observed in the mildest case as faithfully as in the most severe.

During the course of the disease a daily examination of the urine should be made. After the patient is well this should be done once a week for at least eight weeks since at times the appearance of the nephritis is delayed. During convalesence

iron and strychnine in tonic doses are given for at times even in the mildest cases a rather pronounced anemia is present.

Moser's serum treatment has not been mentioned for the reason that this serum is not yet available to the general practitioner. Those who have used it claim that it is as specific in scarlet fever as antitoxin is in diphtheria. The only objection to its use urged so far is that such large doses are required that the danger from serum disease is greater than the relatively smaller doses of the antitoxin. For this reason it is advised only in severe cases.

CONTROL OF THE RECENT OUTBREAK OF SMALL-POX IN WILMINGTON.

JOSEPH AKERMAN, M.D., WILMINGTON.

The recent outbreak of small-pox in our city presents several features worthy of our consideration. While a number of the cases were rather severe, several being confluent, the great majority of the cases were of a mild type. In some instances diagnosis would have remained doubtful but for the fact that other members of the same household developed typical cases.

Our first case developed in February, 1910. At first we were unable to trace the source of infection but more careful investigation showed that a lodger in the house of the patient had recently come from a neighboring town where there had been a few cases of small-pox, and at the time of his arrival was said to have had a few pimples on his face. Following this a few apparently sporadic cases developed here and there in different portions of the city, but closer investigation showed that in most instances there had been cases of unattended and untreated skin eruption in the neighborhood and according to the best information obtainable from patients and their families, a number of these carried on their usual occupations and the children played in the streets with other children of the neighborhood. This condition continued little changed throughout the summer and early autumn.

As we expected with the opening up of the busy season in our industrial plants the disease spread quite rapidly, breaking out here and there in widely separated portions of the city. The cause however could be readily explained when we remember that small-pox was prevalent in over seventy counties in our state and doubtless in a large number of counties in South Carolina and not only were the laborers coming and

going, but in all probability a large number of farm and other laborers with mild cases of small-pox were at work and the products of their labor were being handled in our markets.

As might be expected with the unusual facilities for contracting the disease afforded by the shopping and home-coming during the Christmas holidays, the number of cases increased rapidly. During the height of the outbreak the total number of cases under quarantine at one time was a little below two hundred. Doubtless there was a large number of mild cases never reported and consequently never quarantined, so that we probably had as many as three hundred cases all told. The public became alarmed and exaggerated reports placing the number of cases at several thousand were circulated. At the request of a number of the leading business men of the city, the Board of Aldermen decided to endeavor to render our quarantine more efficient, but acting on the advice of the County and City Boards of Health and leading physicians, the Board of Audit and Finance refused to concur in the necessary appropriation for the appointment of guards for each quarantined house.

The Board of Health as well as other members of the medical profession realized from the first that the only effectual means of controlling the spread of the disease was through general vaccination. From the beginning all exposed persons were vaccinated and all school authorities urged to co-operate with us in carrying out the state vaccination law in the schools. At the beginning of the school year nearly a thousand school children were vaccinated from the two offices, and it is interesting to note that very few of the school children developed small-pox during the whole outbreak. I do not recall a single case of small-pox in a white school child. During these months a number of physicians advised vaccination among their patients and from time to time the Board of Health urged the public to resort to general vaccination and the city and county health officers vaccinated free of charge all who applied. In

addition to this some of our industrial plants made vaccination a condition of securing employment.

On January, 1911, at a joint meeting of the city and county boards of health, an order was issued for general compulsory vaccination throughout the county, and the county and city superintendents of health were given authority to carry out the order. Realizing that the industrial plants afforded the most prolific source of danger, we conferred with the managers of these plants and with the voluntary assistance of several physicians these plants were visited and all employes vaccinated. The schools were also visited and all pupils not showing satisfactory evidence of vaccination were sent home to be vaccinated by their family physician or to report at the health office for vaccination and certificate. In the case of school children we instructed the teachers to readmit children on certificate of vaccination but not permanently allow attendance till a certificate of successful vaccination was presented. When the order was made public a large number, especially of our colored population, voluntarily presented themselves at the health office for vaccination.

Our first plan was to employ a sufficient number of physicians to make a house to house canvass, but on account of our inability to secure a sufficient number to carry out this plan, we adopted a different policy within the city limits: while the house to house canvass was carried out in the country. After consultation with the Mayor and City Attorney the following plan was adopted: ten policemen from the regular force were detailed to systematically canvass the city. They were given certificates of vaccination stamped with the signature of the superintendent of health, (specimens passed around) and printed notices made out in duplicate and put up in pad form, so as to be filled in with indelible pencil and carbon paper. (Specimens passed around). They were instructed to give official certificates of vaccination to all who presented proper certificates from their physicians. All other persons were given

official notification to be vaccinated by their family physician or report at the health office for vaccination within two days. Persons receiving these notices were instructed to present them at the city hall with a certificate of vaccination or to appear in person and be vaccinated. Each officer returned his book of carbon copies at the end of the day, and by comparing the carbon copies with notices brought in during the day we were enabled to locate delinquents with less trouble than we otherwise could have done. The plan worked admirably. The office was kept open for five and a half hours a day. The applicants were lined up by a special officer, their arms prepared by an assistant, then they were vaccinated and two special clerks issued the certificates while the arms were drying. In this manner, with the assistance of one physician I was able to vaccinate six or eight hundred a day. On one day the number reached eight hundred and forty and with those vaccinated at the county office brought the number up to a thousand.

In estimating the number vaccinated we have arrived at the following approximate figures:

Vaccinated from Sept. 1, 1910, *to March* 1, 1911.

City Health Office	12,000
County Health Department	8,000
By Physicians (estimated druggists sale of virus)	10,000
Total	30,000

This number tallies fairly well with the number of official cards issued. When we add to this those who were vaccinated by local physicians and in the schools before this time and those who had previously suffered from small-pox, we see that we have developed a well protected community. We estimated that the number of revaccinations and the number vaccinated dividing tubes of virus would about offset each other.

The results of the vaccination campaign were almost immediately apparent. The disease died out rapidly though a few scattering cases have continued ever since. The observa-

tion of the cases developing after the general vaccination went into effect is very interesting. With very few exceptions, those developing the disease had either evaded vaccination or the vaccination was unsuccessful. In this connection it is interesting to note that numerous instances occurred where one or two members of a household succeeded in evading vaccination, these would develop small-pox while the rest of the household would be unaffected, though living in the same house and mingling with them.

Our experience might be of some assistance to other cities confronted with the same problem. The method adopted by us in carrying out the compulsory order seems to be as efficient and much more economical than the plan of a house to house canvass by regular physicians. Each physician would have required the services of one or more police officers, besides some means of transportation. The police officers covered the ground more rapidly and as thoroughly as if they had been accompanied by physicians: thus saving the city the expense of employed physicians. Our total expense for medical services within the city limits, exclusive of the salary of the superintendent of health, was less than two hundred dollars. In addition to the salaried help several physicians volunteered their services when the rush was greatest. One point worthy of consideration is the character of the officers used in this canvass. Instead of using untrained men, the police department put on substitutes for patrol duty and gave us the more experienced men on the force for this canvass. We believe this method caused less friction than the house to house canvass by physicians, as no one could be accused of invading the clientile of another physician. In this way each family was encouraged to secure the services of its own physician and consequently the practice of physicians was interfered with as little as possible. Of course this method was not applicable to the country districts.

As can readily be seen from our figure, vaccination can be

carried on more rapidly as well as more effectively at one or more central points than in the homes of the people. It required nine or ten days of the officers' time to cover the entire city and three or four days additional time to go back over their territory and look up stragglers. It is worthy of note that we met with very little resistance other than of a verbal nature. In numerous instances those who were loudest in their declarations that they would resist vaccination were among the first to submit to vaccination when they saw it was unavoidable. In a few instances warrants were issued, but in each case the individual appeared at the recorder's court with a certificate showing that he had been vaccinated between the time of issuing the warrant and the calling of the case in court. The response on the part of the colored people is worthy of commendation. Vaccination became so popular that some with well marked small-pox pits and others with recent vaccination scars presented themselves for vaccination. Some who had been vaccinated on one arm were desirous of having the other arm vaccinated also.

As most of you will recall, Dr. Rankin advocated at the last meeting of this body the abolition of our old quarantine laws and regulations and I am glad to see that our State Legislators have agreed with him. He made it clear that vaccination is the only efficient quarantine against small-pox. Our experience abundantly justifies his statements. From the foregoing description of our outbreak you can readily see that even if the quarantine of the reported and known cases is perfect, there are certain sources of infection that we are powerless to handle. One of the most difficult situations is to reach the mild cases. In a number of instances our first knowledge of small-pox in a family would be one of the last members of the family to develop the disease. I recall one instance where a member of a family developed a well defined case of small-pox, and when we called the family together for vaccination we found that vaccination was unnecessary as all the children of the family

presented evidences of having had small-pox. These children had played with other children of the neighborhood throughout their entire attack. It is needless to say that almost the entire block developed small-pox. In another instance the family servant failed to report for duty and her employer sent her family physician to treat the case. He made the diagnosis of small-pox and reported the case. Investigation showed that almost the entire population of the alley were convalescing from a mild attack of small-pox. Numerous similar instances could be cited. During our vacation at the city health office the police officers detected and removed from line twenty-five or thirty persons who had either had small-pox or were in the midst of the disease. They were unaware of the fact that they had been suffering with the disease. One of these cases attending a dance or colored revival meeting would spread the disease far and wide. Another prolific source of contagion is the articles handled by these mild cases. The system of sending out our wash to the home of the colored laundress doubtless accounted for the cases of small-pox in the homes of the well to do citizens. In one instance brought to my attention a saw mill in the country had laborers in their employ with small-pox who never went off duty. In the agricultural districts it is probable that a large number were picking cotton and putting their children to sleep in the cotton piles and in other instances were picking peanuts from the vines. When the cotton was ginned and shipped and the peanuts threshed we would have ample opportunity of spreading the disease. It is needless to remind this body of the experiences of countries where universal vaccination is in vogue.

STAB WOUND OF THE HEART; DRAINAGE OF PERICARDIUM, RECOVERY.

H. S. Lott, M.D., Winston-Salem.

Cases come to us bringing with them a mixture of emotions; and, after all, it is not the premeditated, but the accidental surgery that ofttimes presents the most interesting features; cases in which we must feel our way, step by step, with the hope that our efforts will not lessen the chances for a successful and living issue.

This young man walked into a drug store one Saturday night. He was supported by a friend, and as he passed me I noted that he was bleeding freely, seemingly from a wound in the chest. Following him to the rear of the store, I found that he had been stabbed through the clothing in the left chest, and he fell to the floor, with no radial pulse, before an ambulance could be called. Hurrying him to the hospital a hypodermic of morphia and strychnia was ordered, and he was placed upon the table for careful examination. Very slowly there was a return of the radial pulse, but it was very small, and the heart seemed to labor with much effort.

On exposure, the wound was found to be about midway of a line drawn just a little upward from the left nipple to the sternum. With very little delay, save for cleansing and ether anaesthesia, a free incision was made exposing the fourth costal cartilage, which had been cut through transversely, the weapon having entered the structures beyond, and in such direction as to indicate some injury to the heart. Upon the removal of this cartilage, in two sections, and the introduction of the fingers into the wound, blood clots were found, and also a ragged puncture, through pleura, lung structure, pericardium, and into the heart muscle, for a depth quite sufficient to be easily perceptible to the touch, although not penetrating into its cavity, and situated at a point in the upper third of the

ventricle, quite near to the line of division between this and the auricular cavity. Upon clearing out the blood clots, the sensation was rather a novel one, of holding the apex of the heart in the palm of the hand, and realizing its rythmic pulsations.

The wound in the muscular wall of the heart was not of such depth as to justify closure with stitches; nor did I feel inclined to close the pericardium and other supervening structures, thus making a sealed wound. But considering the infected weapon, the deep puncture and the unavoidable trauma from blood clots and manipulation, I determined to drain both pericardial and pleural cavities, and make a wide open game of it all. In order to accomplish this, two pieces of rubber tubing were used, each one of them split open on one side for its entire length, and its lumen filled with a soft gauze wick. One of these tubes, the longer one, was passed through the rent in the pericardium and well down to the limit of the apex of the heart; and the other one, not quite so long, through the rent in the pleura and lung tissue and well down into the pleural cavity, posteriorly. These were fixed in the usual manner with safety pins, and an ample gauze and cotton dressing made secure with a many-tail bandage.

Hypodermics of morphia were given to relieve pain and secure quiet, and during this first forty-eight hours the clinical picture was a most interesting one. The heart had not had such a neighbor before, and its conduct was very erratic, the pulse going all gaits ranging from one hundred to one hundred and forty, and was of a very irritable and resentful character. After forty-eight hours the tubes were drawn up for about an inch and cut off, and this was continued each day until they were out of the cavities. Drainage during this time was very free indeed, so free in fact that it would have been alarming had I not believed that no important vessels were cut; and the dressings were not disturbed. This drainage lessened each day, and by the time that the tube was withdrawn from the peri-

cardial cavity, had practically ceased, and from that source there was no further trouble.

Not so, however, with the drainings from the pleural cavity. After about a week, and also after the long tube was out, a quantity of straw colored serum, as from a pleuritis with effusion, made its appearance, and I deemed it best to put in a short tube and favor free exit of the fluid. This lessened each day, and disappeared, but was followed by an offensive and copious dark drainage, as of necrotic tissue; and I feel sure that there was grangrene of some portion of the lung. During the time of this discharge the temperature was practically normal, although the patient had some pain, and I kept the wound well open and favored free outlet, both by tubes and by posture. It was discouraging, as I feared that pressure of my first long tube might have caused it; and yet I would not have felt safe without its introduction. However, in the meantime, the general condition of the patient was good. The temperature was normal, or practically so, and while the man was very irritable, he was taking food and sleeping fairly well.

The heart's action became more regular, but its rate was accelerated, ranging throughout this time, from one hundred to one hundred and twelve; and finally, when he left the hospital about five weeks from the time of his entrance, the range of the pulse was from eighty to ninety in the twenty-four hours.

The cavity and wound of entrance closed down clean and complete, with never an evidence of infection, and when the young man presented himself at a meeting of the Forsyth County Medical Society some months later, he had gained much in flesh, and declared himself feeling perfectly well. On exposure of the chest, the site of the wound was very evident, and at some distance the apex beat could be distinctly seen through its thin muscular and cutaneous wall of protection.

Now in this case, if I served my patient at all, I firmly believe that it was accomplished by drainage: not that it was skillfully used, or always wisely placed, maybe, but that it was persisted in until the cavity was clean and closed.

WHAT AID IS THE LABORATORY IN DIAGNOSIS?*

JOHN HILL TUCKER, M.D., CHARLOTTE.

The object of this paper is first, to disclaim any other purpose than an attempt to answer the above question from the standpoint of one doing special work.

For as one specializes in medicine his work naturally becomes more confined to the details of medicine, and if he is what the name should imply, a specialist, he is often called upon to give an exact diagnosis and probable prognosis. Of course, both within reasonable limitations, and as a rule to a brother physician who has referred to him the patient. These patients are referred for a two-fold purpose; first, the patient seeking relief; secondly, the regular consultant requesting aid in special conditions for which he neither has the time nor the necessary means at hand to do the work.

Again referring to the hypothetical title of this paper, "What Aid is the Laboratory in Diagnosis?" To the writer's mind the honest, well-trained and diligent worker in a practical laboratory is the High Priest in the Sanctum Sanctorum of the Temple of Progressive Medicine. In this day of multiplied specialists, the real patholigist is his workshop should be looked upon as the specialized specialist. There has been of recent years a reactionary attitude on the part of some as to the real value of the laboratory in diagnosis. However, the laboratory is, and will continue to take its place in modern medicine. Just as the regular practitioner has a perfect right to expect and to demand of the man who announces himself a specialist, an accurate and special knowledge of certain conditions, so have all classes of medical and surgical men a right to expect of the pathologist, special and most accurate knowledge and method

*Read before the Mecklenburg Medical Society, July 4th, 1911.

of doing this the most important of special work. I feel confident that there is not a gentleman present here tonight, who, in looking back through the varying years of his experience, would not agree in the conclusion that whenever he has been misled by the laboratory findings in his own cases, it was due to either careless or inaccurate work in the laboratory or a failure on his own part to correctly interpret the laboratory findings along with the clinical symptoms present.

It is well and generally known that the laboratory findings in each case should be considered only as one of the symptoms which must be recorded and studied in the hope of obtaining a complete and instructive clinical picture. In fact it is necessary to good work that the laboratory findings and clinical symptoms should never be separated. Therefore, our best pathologists are more and more refusing to hazard the usefulness of the laboratory by accepting specimens for examination without an accompanying report of the clinical symptoms, and knowledge of how the specimens were secured. For where could be the wisdom of reporting the tubercle bacilli accidentally present in the sputum of a man without elevation of temperature, or pulmonary symptoms, as being a case of tuberculosis of the lungs. On the other hand, appalling is the folly of waiting to treat a well advanced case of pulmonary tuberculosis with marked clinical symptoms until the bacilli are found in the sputum. Only a few days ago, a gentleman of this society was overheard to remark, "How wrong it is to jump at conclusions from the laboratory reports when taken alone." He gave as an example a case that he had recently seen which was being treated for nephritis, the diagnosis being based upon the facts that there were casts and albumin found in the urine; whereas, upon closer inspection it was ascertained that the patient was not suffering from a kidney lesion at all, but an organic heart trouble. The patient later dying without kidney involvement. It is needless to weary you with the endless recitals of such cases of mistaken diagnosis when the lab-

oratory findings or the clinical picture is taken alone. However, I desire to report a case in point, and I do so with the permission of the general practitioner who made the diagnosis for two eminent specialists.

The case in question was one referred by an eye man to a general practitioner with the request, "This patient's eye conditions have been steadily growing worse." His urine examined by another specialist showed albumin, casts and chronic nephritis. Please take patient in charge and do anything you can for him. Now the general medical man, wiser than either of the specialists referred to, started his own investigations of the case. The reports of the two specialists were before him as only symptoms of a complicated condition, *i. e.*, albumin and casts, and certain changes in the eye grounds suggestive of chronic nephritis. This medical man, (and I cannot refrain from here stating parenthetically that the more deeply I am involved in special work, the more confident I daily become of the fact that the real welfare of the health of the human race rests not so much in the hands of men whose medical horizons are confined to one or two organs, and are designated specialists as in the vigilant keeping and care of the general man who learns from constant contact with all kinds of specialists to place the findings of the specialists where they rightly belong, often as symptoms, or contributing causes of disorder in more or less a complicated condition. To use a rude simile that "the dog wags the tail, not the tail the dog."

To return to the history of the case we were considering, the medical man began to look around for some causal factor in the condition of his patient. Not being satisfied with the completeness of the study of the case, he appealed to the laboratory once more. Having previously obtained a suspicious history, he asked for a Wassermann. The report was confirmed as a positive Wassermann.

The patient was at once placed on intramuscular injections of the salicylate of mercury with the immediate result of

marked improvement of all his symptoms, including those of the eye and kidney. This case of a man going to a specialist for his eyes, will serve to illustrate the object of this paper. The specialist and the laboratory in the first instance were quite right as far as they went. However, they left the case for the medical expert to finish, which he was enabled to do by the previous findings of the specialist and laboratory, and again appealing to the laboratory for additional help, which was demonstrated in this well known blood reaction. To briefly conclude these few desultory remarks let us sum up the matter with the assertion: the laboratory can no longer be looked upon as a luxury, but must be deemed a vital necessity in the practice of every successful medical man, be he general practitioner, surgeon or specialist.

Certainly the specialist who is not constantly calling upon the laboratory for help will soon fall out of ranks in the onward march of progressive medicine. Now, if this statement be true, how important it is that the best trained and most painstaking of specialists should go into the field of pathology and bacteriology. It must then go without saying that it is the bounden duty of every brother physician without class or distinction to see that the material turned in for examination is properly gotten and preserved for the laboratory. Not taking a smear of blood on a dirty slide and mailing it two days later to a laboratory with a request for an examination for malaria. with each specimen there should be given a brief history, including symptoms. This gives the pathologist an increased interest in the work before him.

Now of a class of men we must depend so largely upon to straighten out our diagnostic dilemmas and more than any other class to give us reputation as diagnosticians, and whose life work is in the remoteness of the laboratory. It is our duty not only to see that they get the work, but to see that they are well paid for it. It was with a self-conscious feeling of guilt I heard a pathologist some months ago remark: "I believe

some people think we can live and work sixteen hours a day on air." To summarize in view of the conclusion that the laboratory is a necessity in the practice of every successful medical or surgical man, I submit in my own belief, in the order of their true importance, the three conditions under which the laboratory can be made most helpful:

First. That the man behind the test-tube and microscope should be of the highest order, best trained, and most exact of medical experts.

Second. We should use the laboratory whenever it is indicated and always being willing to recognize its true limitations.

Lastly, the clinical symptoms and laboratory findings should never be considered apart, neither at the bed-side nor in the laboratory.

RESULTS IN TREATMENT OF GASTRIC ULCER.

W. O. NISBET, A.B., M.D., CHARLOTTE.

The object of this paper is to study briefly the results of treatment of 78 cases of Gastric Ulcer, which have come under my observation during the past ten years.

I have divided this series here reported into two groups: *First,* the acute mucous or peptic ulcer or so-called "medical" ulcer. *Second,* the chronic indurated or callous ulcer, include 60-80 per cent of all ulcers.

The term medical ulcer if applied exclusively to the acute is not correct, for both types of ulcers are amenable to medical treatment.

In discussing these cases I shall speak of clinical cures, this is an expression made use of by a number of observers and means that at the time of discharge from treatment the ulcer is to all appearance cured; later developements may show by return of symptoms, that the healing of the ulcer has not taken place. Hence the rule has been generally accepted by recent observers, that no case of gastric ulcer should be reported as cured unless it can be traced and found to show no symptoms of relapse for at least two years.

Of the 78 cases here reported, 20 were of the acute type and 58 chronic type.

Of the 20 acute cases, 18 were dismissed at the end of treatment as clinical cures and at the end of two years fourteen cases had shown no symptoms of relapse.

Of this 20 cases there were two deaths and both due to perforation and when seen in concultation, one was in the terminal stage and operation was not advisable and in the other case the family physician could not get assent to operation.

Of the 18 acute cases treated, all were given the usual bismuth cure.

Chronic Cases.

Of the 58 cases of chronic ulcer, 37 were given the bismuth treatment and 33 were discharged as clinical cures, 10 showed symptoms of relapse within two years and there was one death from perforation, assent to operation being refused; the percentage of cures at the end of two years is 60 per cent, counting untraced cases as relapses.

14 of the 58 chronic cases were given the combined oil and bismuth treatment and 14 were dismissed as clinical cures, 5 showed recurrence within two years, percentage remaining cured at the end of two years 61, counting untraced cases as relapses.

Five of the medically uncured cases, consented to operation and were placed in the hands of surgeons, who did posterior gastro-enterostomy in 4, with one death, while the 5th case laporotomy was done the edges of the ulcer inverted, serous surfaces brought together with Lembert's sutures and reinforced with a covering of omentum. This patient made a good recovery. The percentage of cure for gastro-enterostomy is 80.

Of the 78 cases 44 gave the history of having at some time had hemorrhage while 11 of the remaining cases were positive to the test for occult blood. There are therefore 23 cases which gave no history of visible or occult hemorrhage and this impresses the fact that the vomiting of blood does not occur in a large per cent of cases and that we must learn to recognize gastric ulcer in the absence of this symptom.

It is also to be noted that the 19 uncured and relapsing cases only 5 were brought to operation although, surgical interference was advised in each instance.

Perforation occurred in 3 cases of the entire series; one in a child of 8 years and two in adults. Of the two adults, in one perforation had taken place before admission and operation was refused, and in the other cases perforation occurred three days after admission, laporotomy and inversion of the ulcer was done with recovery.

Notes as to Medical Treatment.

In all cases of active hemorrhage rectal feeding was given for ten days. In uncomplicated cases 6-10 ounces of plain or peptonized milk were given every two hours during the day and every three hours during the night.

It is often necessary to add lime water, citrate of soda or Vichy to neutralize the gastric acidity and to prevent coagulation in large masses.

After the first week in acute cases, whipped whites of eggs and strained cereal gruels may be permitted. In many chronic cases these may be permitted from the beginning, along with beef juice or scraped beef. It is to be remembered that often owing to their excitant action on the gastric secretion, pain and discomfort are excited by the feeding of meats in certain cases.

The bismuth treatment consisted in the administration of 20-40 grs. of subnitrate of bismuth three times daily before food.

The bismuth and oil treatment consisted in giving the bismuth as just mentioned and in addition one-half to two ounces of olive oil twice daily.

During the past year I have treated a number of cases simply by rest in bed and diet and am convinced that in many cases this is all that is necessary.

THE PEDIATRIC ASPECT OF TUBERCULOSIS.

PAUL H. RINGER, A.B., M.D., ASHEVILLE.

My subject is essentially a broad one. Treating it as I do before an audience composed in the main of general practitioners, it has not seemed best to take up in detail any one phase of the subject, but to try to present a bird's eye view of a question that is yearly assuming greater proportions.

It has been well stated that "the child of today is the consumptive of tomorrow," and in our age of progress we have come to realize that prophylaxis is the foundation-stone upon which our campus of successful warfare against the tubercle bacillus must be waged. Within the past two decades our foremost pediatrists have shown us that children cannot any longer be considered as "little adults," but deserve a separate category sacred unto themselves. Etiological factors in the acquisition of disease affect the young differently from their elders, and owing to lack of development, to general hypersusceptibility, to a relative failure of that "balance of power" existing between the various systems of the body in the adult, the symtomatology of tuberculosis in children varies greatly from its ordinary manifestations in those of riper years. Again, as obviously children cannot be reasoned with, cannot be subjected to the same regimen, cannot work out their own physical salvation as can adults, different therapeutic measures must be resorted to.

Etiologically, despite the work and writings of von Behring, the balance of authority swings toward the theory of inhalation infection. Comby strongly favors this theory, and lays special stress upon the many chances of infection in infancy, chances that increase with every day of the child's life. The inhalation theory is further borne out by the well-known fact that after the first year both the morbidity and mortality from

tuberculosis markedly increase, and that after the sixth year is reached rise still further—Comby laying this at the door of the manifold opportunities the child has for becoming infected. These chances are further increased if there be a case of tuberculosis in the family. Holt considers every child born into a family in which there is a case of tuberculosis as latently tuberculous, and Floyd and Bowditch conclude from a study of 1000 children that post-natal transmission from the parent is the most important factor in the acquisition of the disease. Of these 1000 cases, 639 had been in immediate home contact with tuberculosis, and of this number 36% showed definite signs of pulmonary consolidation. In one instance, one of the parents having an open case of tuberculosis, the disease was present in 4 out of 5 children.

The connection between the acute infectious diseases of childhood and the occurrence of tuberculosis is well known, though the modus operandi is but ill-explained. Copeland believes that measles, whooping cough and influenza being highly infectious in their nature, their epidemic occurrence together with the marked catarrhal inflammation of all the mucus membranes and especially those of the upper respiratory tract tend greatly to lower resistance. In the catarrhal condition of the mucus membrane of the respiratory passages lies the key to whatever connection exists between tuberculosis and these diseases, and in view of the plausibility of the theory of infection by inhalation, this relationship becomes obvious.

There is a tendency to minimize the role of predisposition in the child, to say nothing of that of direct inheritance which has practically disappeared from all save the lay mind. The gist of the argument is this: That in a family where tuberculosis exists, the opportunities for its acquisition on the part of the child are so manifold that the word "predisposition" is faulty, throwing, as it does, inferrentially, the blame for infection upon the child's weakened constitution, whereas, the

real cause lies in the multiplicity of foci whence tuberculosis may be acquired.

The foregoing statements place the etiology of tuberculosis in childhood upon a very simple and common sense basis: easy to comprehend and practical to contend with. These statements do not in any way argue against the scrupulous inspection of milk, against its pasteurization if need be, against the routine employed of the tuberculin test in all herbs of cows, nor against the most sanitary condition of the dairy and of all connected therewith. These steps are too wise and too progressive to even be questioned, but the previous statements do bring home the fact that tuberculosis whether in the child or in the adult is essentially a house disease, and that its ultimate conquest must be effected upon the field of battle chosen by the organism, the tenement and the home.

It is a well-known fact that the symptoms of tuberculosis in children are notoriously inconstant and vague. This, of course, does not apply so closely to cases of surgical tuberculosis, cervical adenitis, arthritis, etc., nor to those cases ordinarily referred to and treated by the orthopædist; hip and spinal disease. The clinical manifestations, however, of pulmonary and bronchial-gland legions in the young are confusingly protean. We have, in a measure, the constitutional symptoms of fever, loss of weight and strength; but the other systemic signs, such as fast pulse, dyspnœa, cough and expectoration, are often lacking, or else difficult to elicit accurately, because of their very instability in infants and young children. A pulse rate of 130 to 160 in an infant does not cause deep concern, the child's breathing will often fluctuate greatly under a variety of influences, its temperature is notably labile, its cough is frequent and its expectoration always absent. When to these obstacles there are added the rapid changes in weight taking place in the presence of digestive derangements, and the absolute impossibility of arriving at any of the subjective symptoms, difficulties of diagnosis are vastly augmented.

The physical signs of tuberculous thoracic disease in infants and children are frequently atypical. They are doubly so in that the apical rales and infiltration or partial consolidation so suspicious in the adult will often rapidly clear up, and also in that sporadic signs in unusual portions of the chest may determine serious trouble. Thus Miller and Woodruff in a study of 87 cases of pulmonary tuberculosis in children found that only 15 had signs similar to those usually found in adults, and furthermore that all these children were over 9 years of age. Thirty-five of the 87 cases had fine subcrepitant rales in portions of the lung other than one apex, usually near the nipple. As a result of their study of the subject, Floyd and Bowditch believe that owing to the peculiar anatomical structure of the chest of a child, the pathological process must be relatively large to be evident, and the non-appearance of sputum together with the difficulty of its acquisition, is a great handicap to diagnosis. La Fetra gives briefly an excellent summary of the status of the diagnosis of tuberculous chest affections in infants. He says: "for an absolutely positive diagnosis of pulmonary tuberculosis in an infant suffering from a persistent hacking cough, (whether poorly nourished or not), one must either find the bacilli in the sputum, or see the lesion at autopsy. But the new tuberculin reactions of Pirquet, Calmette and Moro, when positive, are almost as reliable. For the negative side more can be said. If no bacilli are found upon repeated and careful search, and if the skin test be also negative, one can feel safe in excluding pulmonary tuberculosis, *no matter what the signs in the chest may be.*

It is a noteworthy fact that skin tuberculin reactions are far more important in children than in adults especially when negative. This importance begins to lessen after the 6th or 7th year. In the adult, while a positive Pirquet, Calmette or Moro may give confirmatory evidence, its presence is no more a pathognomonic sign of tuberculosis than its absence is an assurance of freedom from that disease.

Bowditch divides cases of pulmonary tuberculosis in children into 4 distinct clinical groups which, of course, merge imperceptibly into one another. These are:

1. Cases associated with bronchitis, and having scattered tuberculous nodules throughout the lungs. The physical signs are those of a moderately diffuse bronchitis, and are usually held not to be of ill-omen until signs of consolidation appear.
2. Cases associated with tuberculous broncho-pneumonia, accompanied by various sizes are of more or less marked consolidation with their characteristic physical signs.
3. Acute miliary tuberculosis of the lungs.
4. Tuberculous bronchial glands.

With regard to the last two classes it may be stated that the physical signs of acute miliary tuberculosis of the lungs are as inconsistant in the child as in the adult, and that while certain cases of tracheo-bronchial adenopathy can be diagnosed with certainty by means of auscultation and especially by means of percussion, we have now in the X-ray, whether by the use of the fluoroscope or of the radiographic plate, an invaluable aid to the recognition of this condition.

Thus we see that both symptoms and physical signs are uncertain and unsatisfactory, but if we will bear in mind their departure from the normal, if we will hark back to Dr. LaFetra's instructive sentence, if we will take time in our study of the case and carefully weigh family surroundings, chances of infection, systemic symptoms and physical signs, we shall make earlier and more accurate diagnosis of tuberculosis in our child and infant patients.

The prophylaxis and treatment of tuberculosis in children, as in adults, will always call for the co-operation of physician, sociologist and philanthropist. The great majority of plans for treatment and especially for prevention of infection are cast with regard to their practicability among the poor. This fact however by no means vitiates their usefulness in the upper

classes of society, where, funds not being lacking, their application will be found comparatively easy.

Children vary from their elder brethren in temperament, mentality, adaptability and power of self-control. It is most difficult to reason with a child, to place it in a reclining chair upon a porch for 10 hours daily, to keep its spirits buoyed up with words of hope and common-sense. The infant can be kept in the open most of the time to be sure, it being too small and helpless to do aught but lie there, but the older child is the one that tries one's patience and ingenuity. Children, it appears, can tolerate a relatively greater tuberculous infection than can adults, just as they most assuredly cannot tolerate as much enforced restraint. Thus, fortunately, they can be allowed more latitude than their elders with less likelihood of physical harm resulting than there is of mental rebellion setting in if they be kept in a condition of absolute quiet.

The first individual to receive consideration is the child in whose family there is a case of tuberculosis. These children are constantly exposed to infection, and sooner or later many must succumb. Home hygiene is of prime importance and must be insisted upon, but this can be left to those that are caring for the disease in the adult member of the household. One of the prophylactic plans that has worked best consists in the sending away of these children into the country, or at least at a distance from the focus of infection for a few weeks or months. While away they are lodged in farm-houses, in a home provided by the charitable organization, or in a camp run for beneficent purposes. Their life is wholly in the open, they are fed bountifully, all occupations are planned so as to be carried on out-of-doors, and thus the child that has reached that misty region known as the "pretubercular" stage is restored to health and usefulness. Again, children that remain at home can be made to become interested in gardening and, under competent direction, be taught to cultivate little plots of their own. The Cleveland anti-tuberculosis league has utilized

this plan with great success, the children taking pride in the small amount of ground under their own immediate cultivation, and vying with each other to see which can make the best showing. This scheme creates a new interest in the child's life and keeps him at light, healthful work out-of-doors. At the same time, all children seemingly in need of additional nourishment are supplied with milk and eggs by the Associated Charities.

In various cities day camps have been established both for suspected cases and for those mildly infected, whither parents can bring their little ones to be taken care of during working hours under good hygienic and dietetic circumstances, the children being taught at intervals during the day, a bountiful midday meal served, and milk and eggs supplied to those needing them.

The foregoing measures relate of course only to those cases either not ill themselves and merely open to the danger of infection at home, or to those cases that, while frankly positive, are as yet in good physical condition. For both classes of cases the open-air school is one of the greatest institutions. Experiment in the direction of specific open-air schools for those actually in need of curative measures has led directly to more radical inquiry as to the possibilities of more opportunity for exercise and study in the open-air for all children in connection with regular instruction in all the schools. The example of the Providence, R. I., school board in: "cutting out southern brick walls and inserting in their stead long windows hung from the top and opening inward," thus capable of immediately furnishing an open-air room, might be followed by the school boards of all cities and country towns as well.

The treatment of active tuberculosis in children, whether the process lies in the bones, glands, or lungs, presents nothing particularly new or worthy of being stressed. Cases of surgical tuberculosis seem to do better at the seashore than do pulmonary cases. The Sea-Breeze Sanatorium at Coney Island

is obtaining excellent results in the treatment of surgical tuberculous conditions. For the active treatment of lung cases hygiene, rest, food and climate are, as in the case of adults, our main weapons. The ardent advocates of tuberculin laud its efficacy in children as they do in adults—on that question each must decide for himself. Generally speaking, the three prime elements in treatment, hygiene, rest and food, cannot be enforced as strictly nor as systematically in children as in those of riper years. The best possible must be done. The task is easier with surgical cases, offering as they do more opportunities for moderate exercise and for mild diversions of various kinds.

It is not within the scope of this paper to go into further details with regard to the many and varied means utilized for protecting exposed and saving infected children. Suffice it to say that all are based upon two large principles:

1. Fresh air and good food first and foremost; drugs seldom if ever.
2. Co-operation on the part of the various educational elements of society, medical, sociological and philanthropic.

It is only by studying out the needs of the individual community and meeting them as far as possible that a satisfactory solution can be reached, but the two foregoing rules must be rigidly adhered to if success is to result.

The writer in an experience of one year in one health resort, and five and a half years in a second, has been astonished at the small number of children seeking climate as an aid to recovery from tuberculosis. The statistics of our city hospitals for children reek with tuberculosis; why do so few come to the health resort? The correct answer to the question is, I believe, the following: because of the great probability of the inhalation theory in the etiology of tuberculosis, it is far more prevalent in the children of the poor than in those of the well-to-do. Fewer hygienic precautions are taken among the former, and in many cases a diagnosis is deferred until inability

to work forces the patient to seek a physician—the chances for infection on the part of the child have by this time become increased a thousandfold. Again, the poor adult can come alone to the health resort—this the poor child cannot do, and funds are insufficient to pay for the journey and board of two individuals. So but few come, and indeed this is fortunate, for amid strange surroundings and without special facilities for the care and treatment of children the task would be one of vast difficulty.

And now, if we cast our eye backward over the subject that we have touched upon, what do we see? We see in every case of tuberculosis in an adult the possibility of infection for many children. We see a vague protean multitude of symptoms not distinctly characteristic. We see some light in diagnosis, a light however, which breaks only upon the carefully studied case. We see the salvation of generations yet to come in prophylaxis, in measures that may seem far removed from the actual daily round of the practice of medicine—in day camps, in garden-plots, in open school rooms. We see, finally, this prophylaxis attainable only by the union of the various elements of society each of which is trying to achieve good in its own way, and we see in the realization of this prophylaxis the ultimate goal of all those who, turning their efforts to aid others more unfortunate and helping them to regain that which they have lost or to preserve that which is their birthright, are fulfilling in the noblest manner that sublime commandment: "love thy neighbor as thyself."

THE REDUCTION OF INFANT MORTALITY.

CHAS. ROBERTSON, M.D., GREENSBORO.

The State of North Carolina, through its Board of Health, has made no mean record along the line of preventive medicine and consequently has reduced the total death rate very perceptibly. The diseases we have all dreaded most, viz: typhoid fever, small-pox, diphtheria, tuberculosis, malaria, etc., have all been materially lessened. The dread epidemics of typhoid fever and diphtheria, of a decade ago, have become well nigh impossible through the means now employed for their prevention.

But the question of the infant and what can be done to prolong its life into childhood has been given but passing notice. Practically the whole effort has been directed toward saving the lives of adults and of children after they have passed from infancy to childhood. We seem to have forgotten that unless the child lives through its infancy it cannot reap the benefits from the energy and money we are devoting to preventive medicine.

The total death rate in North Carolina in 1910 was 16.7%, of these deaths about one-fourth were infants of one year and under. A study of the death rate of infants born last year in the United States shows that one-fifth of them died before the end of the first year. In addition to this there were a large number of still births and premature births. Most of the deaths were the result of gastro-intestinal diseases; next in number were those from pneumonia; following these in point of percentages were those from the infectious diseases and tuberculosis. The fact that a large percentage of these deaths is preventable can be seen at a glance from the following figures. In New York City from 1880 to 1907 the death rate in children under five years per 1000 of population was re-

duced, through the efforts of the board of health, from 104 to 53, in Boston from 112 to 43, in Chicago from 95 to 47, in Paris from 115 to 50, in Vienna from 141 to 62. The census of 1910 gave the infant mortality under one year per 1000 births as follows: New York state 150.8, New York City 189-4, Fall River, Mass., 104-7, Mobile, Ala., 344.5, Savannah, Ga., 387.5, Charleston, S. C., 419.5. The reduction in death rate in the cities mentioned in the first table is a direct result of the work being done by the board of health in the respective cities, in furnishing pure milk and better hygienic surroundings for the infants in the congested quarters. The figures in the first table will also show that the present infant mortality rate can be reduced. In New York City since the board of health was established in 1886, the death rate in infants under one year has fallen from 10 to 3.8 per thousand. Children have always pulled hardest on the purse strings as well as the heart strings of the people, as is attested by the number of infant hospitals, orphanages, deaf, dumb and blind asylums the world over. The apparent lack of interest in the problem of infant mortality is entirely due to the fact that the attention of the people has not been called to it. The remedy may be summed up in the one word education.

This alarming death rate is due to a series of definite causes. 1st. The slight resisting power of all infants. 2d. The smaller resisting power of the weaklings. 3d. The heat of summer and the accompanying food infection. 4th. The ignorance and neglect of nurses and parents. The first cause is constant and cannot be remedied; the second is constant, but much may be done to render this class of children more normal; the third can be remedied only by removal to the mountains or country; the fourth is unnecessary and hence is the one toward which must be directed our main energy. Hence our fight must be made against food infection and the ignorance and neglect of the mothers. This can be accomplished only through some system of education which will enable the infant to receive a

pure milk supply, and to keep it pure until the last bit has been taken from the bottle, and to furnish it better hygienic surroundings. The two means most successful in securing a pure milk supply have been milk depots, such as are operated by Nathan Strauss and others, and milk inspection by municipalities. Unfortunately the maintainance of milk depots is too expensive for small cities and towns. We are forced, therefore, to face conditions as we have them and to combat them by such means as are at our disposal.

The infant death rate rises highest in summer because of the high temperature and the added danger of food infection. If it were possible to nurse all babies at the breast for six months, or to feed them pure milk properly prepared the infant death rate would be greatly reduced. But all babies cannot be nursed and all milk is not pure when bought and, equally important, the ignorance and neglect of the mothers in feeding and caring for them makes the problem a serious one. This great increase in summer death rate from food infection is due to the gastro-intestinal diseases from which most children die. In New York City the death rate from acute gastro-intestinal diseases is 28%, from prematurity, marasmus, etc., 25.5%, from acute respiratory diseases 18.5%; these three causes making up 72% of the total infant mortality. These figures do not definitely express the actual death rate from food infection, because many of the deaths reported as marasmus, malnutrition, etc. are really the result of improper food improperly prepared. So it is the bottle fed infant that furnishes the great death rate. In the larger cities of the United States it has been estimated that 20% of infants are bottle fed and 80% are breast fed, and during the first year of life 85% of the bottle fed infants die to 15% of the breast fed.

Some concerted action on the part of physicians should be made to secure the breast feeding of all infants whose mothers have not sufficient breast supply. No social obligation, whatever nor duty of any sort should deter the mother from keeping

her infant at the breast. It rarely happens that a mother's milk disagrees with her infant and we are often too ready to substitute the bottle for the breast when a little perseverance would remove all the difficulties.

As regards those deaths due to marasmus, prematurity, congenital malformations, etc.—any reduction in the death rate from these causes must of necessity be attained by attention to the parents before the infant's birth. Syphilitics should receive appropriate treatment, the afflicted from whatever cause should be gotten into as good physical condition as possible. The poor and ignorant should be instructed in the laws of hygiene and cleanliness so that they might approach their confinement in the best condition. The question of the wage earner and the influence of factory life on the infant death rate is most important in this connection. Here lies another duty for the health board in securing the enactment of the laws necessary for her protection. She should have a period of rest with proper food and attention both before and after her confinement, and should be instructed by some nurse or physician during her puerperium. Some regulation of the marriage laws should be made that would prevent the union of those mates whose offspring might be defective or congenitally deformed. Marriage between the tuberculous or the syphilitic should also be prevented by law. The deaths from respiratory diseases could be reduced by better attention to ventilation and hygienic surroundings, because more of the deaths are the result of the unhygienic surroundings and poor ventilation than the disease itself. Improper ventilation, crowding of too many lives into one small room, poverty and ignorance all furnish their part in turning the scale against the afflicted sufferer.

Next in our list comes the infectious diseases. In the four largest cities in the United States the death rate from the infectious diseases furnishes only 5.8% of the total. The steps

now being taken by our health boards are doing all that can be done at present to limit these diseases.

This brings us to the last and most important factor in the causation of our high infant mortality, viz.; the gastro-intestinal diseases. The deaths from this cause according to our table referred to above, comprises 28% of the total death rate. Since most of these deaths occur in the bottle fed and among those who are careless and ignorant, it must follow that many of them are preventable. In New York last year 16,000 infants died from diseases largely preventable. Any correction of the causes operating in this class must come through some system of education that will give a more wholesome milk supply and teach better hygiene and feeding principles. Instruction must be given the mothers or those who have the infants in charge. In those cities that have had the largest experience in this work, it has been found that the greatest good can be done where the doctors and nurses work together. In those towns that can maintain a milk depot the means of reaching a certain class of mothers is readily at hand. But the difficulty in the way of obtaining the most perfect results from such depots is the fact that only a small percentage of the mothers will patronize them; and the ones who do not patronize them are those who are most in need of instruction. This latter class can be reached only by the visiting nurse and this in my opinion is the most successful plan of campaign. Here too, we are met by a serious difficulty and that is the unreliable vital statistics and the inadequate laws governing birth registration. The nurse can visit only those children whose births have been reported. A great majority of the deaths in this class of patients occur during the first two or four weeks of life and if any real work is to be done for them they must be seen early, before the fatal condition has been established. The laws governing birth registration should be sufficiently stringent to insure the report of every birth in each county. In Guilford county we have a superintendent of health employed for his

whole time, and he has had passed a law requiring every doctor in the county to report to him, on blanks prepared for the purpose, the birth of every child, with the name and address of the parents. In Greensboro we have a district nurse, one of whose duties is to visit each mother who has no nurse and give her instructions in the proper care of her infant. We hope by this means to save many children who heretofore have died from the ignorance and carelessness of the mothers. In the large cities where milk depots can be maintained, the mothers who visit the depots are instructed to bring their babies at stated intervals, when they come for their milk supply; at such times the babies are weighed and carefully examined and definite directions are given the mother as to the food and care of each case on its own merits. They are taught the value of cleanliness, ventilations, proper feeding methods, etc. Attention is given not only to the food and its proper preparation, but to the child itself, its clothing, habits, stools, etc. However, it is the family physician who can do most for the success of this work in North Carolina. The district nurse is the greatest asset we have, and every town that can afford to employ one for her full time, should do so. Her work is of far more importance than the average city council knows, and it is our duty to direct their attention to this phase of their duty and never to rest until each town has in its employ a corps of district nurses whose duty it shall be to instruct the people in the principles of hygienic living and proper care of infants. She should be furnished a list of births each day, by the board of health, and should visit each child and mother as often as in her judgment it seems necessary.

In spite of all that we can do in the way of furnishing nurses and milk depots there will still be a great many mothers and babies who will have to be seen only by the family physician, and it must fall to his lot to give his care and attention to the proper management of the child. He must become more than ever the educator of the people, and his work will consist more

than ever in teaching people how to keep well and less and less in curing the sick. I believe that the day is not far distant when families will employ their physician by the year to keep them well rather than send for them only in case of sickness.

The question of infant feeding and infant development is really just in its infancy and the medical schools are just awakening to its importance. We can all remember when there was no separate chair of Pediatrics in any of the medical schools and when no examination on Pediatrics was required for graduation. It is only within recent years that infant feeding has been taught at all and a great many physicians are really lacking in ability to properly feed and care for infants. It is too often left to the discretion of the mother or black mammy to decide what sort of food the child shall take, and in what amounts and how often.

Right here I would like to pay my respects to the house fly and the part it plays in increasing our infant mortality. We know that the gastro-intestinal diseases are in great part caused by food infection, and we also know that the fly brings all kinds of bacteria to the nursing bottle and food of infants. Perhaps the greatest danger comes from the habit of the mother or nurse in removing the diaper from the child, laying it on the floor to be covered by a swarm of flies, that convey the bacteria directly to the nipple of the patient or the food of a healthy child. Often we see a case of simple indigestion suddenly develop an acute infectious diarrhea, and either in the stool or in the intestine at autopsy we find a fly covered with bacteria that are the specific cause of the attack.

The question of infant mortality is a pressing one. It needs our most earnest thought. We know from the experiiences of other states that it is capable of solution. I hope to see a system of district nurses in every town in North Carolina, whose duty it shall be to visit every new born infant who is not already in the care of a competent nurse or physician. I hope to see milk depots established in every town that can afford

them, and I hope to see the nurses and doctors given special instruction in the principles of feeding and caring for infants. Then and not until then can we hope to see the infant mortality reduced.

I wish to give credit to Dr. L. Emmett Holt for the figures I have taken from his paper published in the American Medical Journal, and to the North Carolina State Board of Health for the mortuary tables sent me.

THE TREATMENT OF ILEO-COLITIS.

K. P. B. Bonner, M.D., Morehead City.

It has oftentimes been said "that the more that is written about the treatment of a given disease, the less is really known about it." This saying is especially true in the subject under discussion. If any person, who had years of leisure at his disposal, was to devote the time to collecting the literature on ileo-colitis and incorporating it into a series of volumes; it would easily equal the library of the majority of the leading physicians in our state. The grim reaper, each summer, continues to claim too large a percentage of our coming generations and this percentage shows little or no decrease in spite of the voluminous literature. It is true that in the large cities of the North much has been accomplished toward lowering the death-rate by establishing milk depots and an inspection of the milk supply. However, even in these cities, much remains to be accomplished. These few cities contain only a small part of the population of our country, and nothing is being done beyond their borders. The average physician in North Carolina today knows practically nothing of the Treatment of Ileo-colitis and when he turns to the text-books for aid he usually emerges more confused than when he started. Our searcher after light always finds plenty of "treatment," but in such a tangled and incoherent mass that he is unable to select what he really needs. What is true of the man in active practice, applies with double force to the student. Ninety-nine out of a hundred students of medicine leave college at their graduations with their heads crammed full of milk formulae, and with not the slightest conception of a rational plan of treatment for one of the most prevalent diseases with which they will encounter from the very first.

A paper that merely consists of a lot of collected statistics

and opinions of writers other than the author, while it usually represents the result of the most careful and painstaking study on the part of the writer, never interests me in the least degree; because it does not exhibit the author's bed-side experience but that of other men and for that reason has no individuality. I have always been able to get these things from my text-books and medical journals, either in the original communications or from the abstracts. It is my purpose to outline a general plan of treatment for ileo-colitis which, while I am not egotistical enough to believe will prove successful in all cases, will meet the needs of the vast majority. Understand that I am not outlining a routine treatment, as this plan will require modification in numbers of cases to meet the individual peculiarities of the child. The Treatment of Ileo-colitis will be considered under two heads,—the treatment of acute ileo-colitis and the treatment of chronic ileo-colitis. Each of these headings will be further subdivided into hygiene, diet, and medicinal treatment.

Acute Ileo-colitis.—Too much stress cannot be laid upon the importance of the institution of early and energetic treatment for this disease. Numberless cases are neglected until too late, by the parents of this class of patients on account of the delusion that the attack is "a teething spell," or "due to worms," or for some other equally foolish idea and these notions are often encouraged in the parents by their family physicians. When these cases are brought to the attention of the physicians, the majority are treated but indifferently. When we remember that it is from these acute cases that we get our chronic cases, the importance of prompt and energetic treatment is obvious.

The first indication in the treatment of this disease is to discontinue all food in the case of older children, and in the case of a younger child, if it is breast or bottle-fed, to greatly decrease the amount and frequency of feedings. Nothing has a more important bearing on the outcome of acute ileo-colitis than the child's diet. The best plan is to discontinue milk en-

tirely and to substitute in its place barley-water, beef-broth, peptonized foods, and in case milk cannot be dispensed with,—skimmed milk. As the symptoms improve the diet may gradually be increased to normal. Diet is put first because I deem it of most importance.

The next most important point in the treatment of this condition is the hygienic treatment. Daily baths with tepid or cool water, preferably sea-water, if at the sea shore, are absolutely essential and it will be found that in children who rest poorly, that the morning bath is an excellent somnifacient. The patient should have an abundance of fresh air at all times. After the inflammatory symptoms have subsided, a change of air is imperative and children usually improve most rapidly when sent to the sea shore. On the other hand children at the sea-shore should be sent to the mountains. If you had seen the remarkable and rapid improvement which came solely as a result of being sent to the sea shore, you would heartily endorse the idea of the importance of a change of air. This transformation comes a great many times without any change whatever in the diet or medicine. While this is true as to the acute type of this disease, it is more strikingly brought out in the sub-acute and chronic cases.

Medicine plays only a secondary part in the treatment of acute ileo-colitis and although of secondary importance, is essential in the successful management of the disease. A word of caution just here,—never drug or dope your cases of ileo-colitis too much if you wish a cure. At the outset of the disease a brisk purge is indicated, consisting of either calomel or mercury with chalk, to be followed with a full dose of castor oil. The purge may be repeated one time but no more; because the second dose accomplishes all that can be done by purging. After the second dose, if it is necessary for the bowels to move, castor oil will fill all the requirements. It is necessary to go back to the origin of acute ileo-colitis to discover the object of administering the purges. Acute ileo-colitis is invariably

the result of some error in diet of the child, consequently we give our purge to empty the gastro-intestinal tract of the offending substance. The subsequent exhibition of castor oil is to, also, assist nature in ridding the alimentary canal of the toxines that are formed as a result of this error in diet. Whenever the stools continue profuse after this treatment, irrigation of the colon is necessary, and the irrigation should be repeated occasionally if the diarrhoea continues. Frequent and indiscriminate irrigation of the colon is to be condemned in the strongest language, as such a method of treatment causes more trouble than the disease itself. If at the end of the second or third day the diarrhoea does not show signs of improvement, I invariably begin the use of bismuth notwithstanding the condemnation of many eminent men of its use at this stage. Bismust has been the sheet-anchor in the treatment of gastro-intestinal troubles for generations and my experience with it has not been disappointing. When bismuth fails, I have never found anything that I could substitute that would even do as well. The greatest fault with the majority of practitioners is that they do not give it in sufficiently large doses and for that reason fail to get the desired results. On this account, bismuth receives a large amount of unmerited abuse. My plan is to give the subnitrate of bismuth in doses of fifteen grains every hour or two to a child of one year and to increase the dose to as much as thirty grains for a child two years of age. I can see no possible objection to the administration of bismuth for the diarrhoea in the acute stage as it seems to be clearly indicated. Bismuth has a double action, in that it is an astringent and it, also, has a mechanical action in forming a protective coat over the inflamed and irritated mucous membrane of the intestines, thereby allowing these affected parts sufficient time to recover. Bismuth, except for its feeble astringent action, is an inert drug so far as toxic symptoms are concerned, and for that reason I can see no possible objection to the administration of large doses. A good vehicle in which to exhibit the subnitrate

is mucilaginous cinnamon water. Cinnamon water is a carminative and, as there is usually tympanites co-existent with the other symptoms, is indicated.

The large majority of this class of patients will usually be convalescent in a short time and the return to normal diet should then begin,—gradually increasing the diet until the child is taking the usual food. These patients should receive the most careful attention as to their diet for the next few months in order to prevent any error in diet as they are prone to have a relapse upon the slightest indiscretion in their feeding.

Chronic Ileo-colitis.—The period of transition is so near imperceptible from an acute to a chronic case of ileo-colitis that it is practically impossible for one to say just where the acute case ends and the chronic symptoms begin. The subacute cases are usually the transitional ones, but the symptoms are ill-defined in the extreme. It is usually from the acute cases that we derive our chronic cases,—those neglected by their parents with the erroneous idea that they will be better in a few days; those receiving careless or indifferent treatment on the part of the physician; and those who even after having the most careful, thoughtful, and painstaking attention on the part of the physician develops the chronic type of the disease.

Diet is of first importance, also, in the treatment of chronic ileo-colitis as in the acute form. Dextrinized barley-water, rice-water, skimmed or peptonized milk, raw scraped beef, and albumin-water make up the principal articles of nourishment to be depended upon in this stage of the disease. Whole milk almost invariably disagrees with the child as their power to digest fats is impaired. The above constitutes practically the entire list of foods necessary for a child other than breast-milk if the child is nursing.

In no disease is the benefits of a change of air more strikingly illustrated than in these cases. The sea-shore is especially suited to these little patients as hundreds of physicians in North Carolina can today testify. Many of you have noticed and

marvelled at the rapid recovery of apparently hopeless cases after a sojourn at the sea side. As evidence of your acquaintance with this fact, an increasingly large number of babies are being sent to our town every summer. In addition to the change of air, plenty of fresh air and a daily bath, in sea water if at the sea side, is necessary.

Here again the medicinal treatment is entirely secondary to the hygienic and dietary treatment. While I am opposed to the unintelligent and routine method of giving diarrhoea mixtures, I am heartily in favor of a continuance of some form of bismuth in the same large doses as in the acute type of the disease. In connection with this, opium, usually in the form of camphorated tincture is ordered. The bismuth is as strongly indicated for the frequent mucous stools as for the watery and foul smelling bowel movements. Too frequent bowel movements and straining and tenesmus at and after stool is a clear indication for the exhibition of some form of opium. Frequent defecation is only an effort on the part of nature to rid the system of offending substances. We should assist in this elimination of poisonous products from the alimentary tract, and particularly the colon, by giving large doses of castor oil. As a result of this plan of treatment, a nervous, fretful, and restless child is transformed into a well contented and quiet one. It is totally unnecessary that these little ones should have intense suffering to bear as well as the discomforts of the disease itself. The idea I wish to convey is, if possible, cleanse the colon and control the number of stools. It is my opinion that irrigation of the colon in chronic colitis is productive of more harm than good. The passage of a tube over the inflamed and ulcerated mucous membrane, however soft the tube may be, cannot but be productive of harm. It has been nothing unusual to see numbers of cases each summer that were aggravated by this very pernicious practice.

As our case of chronic ileo-colitis improves, a most cautious return to more substantial food should be attempted, bearing

in mind always that these little patients are not by any means well for months after their apparent recovery and that we must daily expect a return of the disease unless we are most circumspect in conducting the return to normal diet. The attention to diet must be most vigilant on the part of the child's parents for several months.

INTERNAL SECRETIONS.

H. B. Weaver, M.D., Asheville.

There is perhaps no subject in the domain of medicine which today is creating a greater interest in research work among physiologists and pathologists than the one which treats of the functional relations of the ductless glands and the nature of their internal secretions.

The organs which are primarily involved in the production of the secretions, are accordingly, the adrenals, the thyroid glands, the piturtary body, the pancreas and spleen, and the loucocytes. Up to the present time, no text books of physiology have given any definite knowledge of the manner in which these glands elaborate their secretions, or the nature of their functional relations with each other.

Notwithstanding the fact of the shortcomings of physiology as taught today, anyone who is at all familiar with the literature of the present, cannot help observing the rapid accumulation of knowledge concerning the ductless glands and their physiological and pathological relation in their co-ordinating functions; and in the language of Chittenden (1911) we "Cannot help being impressed with the significance of the result in their bearing on the chemical processes of the body." Not only have we learned that certain of the ductless glands, which hitherto were considered of little importance for the welfare of the organism, manufacture specific, internal secretions, all powerful for the maintenance of health, but it has also been shown that these secretions owe their power to definite, chemical substances produced through the metabolic activity of the gland cells."

Since the early experience of Berkley and Gley, showing that the removal of any group of these glands causes the most profound disturbances in the general metabolism, have culmi-

nated in the later work of Starling and Zuelzer, who have demonstrated the correlation of these chemical substances in the production of harmones in the blood plasma; we make this postulate: that the adrenals, the thyroid gland, and the pituitary body, functionally united as they are, constitute an aurtomomous system (adrenothynoid) whose physico-chemical processes furnish the dynamic elements—harmones, necessary for the complete oxygenation of tissues of the whole organism, whereby the two living processes—the building up of the tissues—anabolism, and the breaking down of the tissues as waste product,—catabolism, are subdued, and thus by which only, life itself, is sustained and health is preserved.

Of course this assertion must be supported by facts.

Chittenden says, "The ductless glands becomes then miniature laboratories, charged with the function of elaborating specific chemical products, which are needed for maintaining the normal rhythm of nutrition. Let these glands cease their functional activity, and the lack of their specific product entails disease and possible death." On the other hand, over activity of this system produces equally as disastrous results.

THE ADRENALS.

Without entering into anatomical details, it is established beyond question, by experiments, that the suprarenal glands manufacture an internal secretion which is emptied through the suprarenal veins into the blood of the inferior venacava; that this secretion contains a definite, chemical, specific substance; that the most characteristic feature of this adrenal principal is its great affinity for oxygen; that it has the power of raising blood pressure; that this secretion produces effects similar to those produced by intravenous injections of adrenal extracts, adrenalin, epinephrin, suprarenalin; that this secretion thoroughly mixing with the venous blood, in its passage through the heart stimulates through Thebasean foramina the muscular fibres of the same, to tonic contraction, which propels the blood-plasma to the pulmonary alveoli, where it ab-

sorbs the oxygen of the air, whereby a *new* compound is formed, consisting of 94% of the enygenized adrenal secretion, and 6% of hematin, in loose combination, which constitutes the oxidizing harmone which carries on the oxygenation of the body at large.

If these cardinal facts are true, it is evident, that the adrenal harmone endows the blood with its oxygenizing properties, and being ubiquitous, is found in all the tissues supplied by the blood stream, and is the vital dynamic element in tissue metabolism; its variations from the normal depending on the over activity or inefficiency of the adrenals.

A. Bengal and E. Strauss, (1911) report their careful observation on blood pressure-raising substances. Tests were made with the juices of many organs, but all proved negative in action except extracts of the hypophosis and the adrenals. The action of these was very powerful; raising the pressure from 40 to 60 mm. It is seen therefore, that here is an insignificant gland endowed with the function of producing a chemical substance which has a most profound influence in the modification and control of nutrition and the vital processes of the body.

Its fundamental importance to the organism suggests itself from a pathological standpoint, when we behold the dreadful results from a complete extirpation of the glands; while on the other hand, the physiological importance asserts itself with equal force, from the manifest effects of therapeutic application of the adrenal extracts.

THE PITUITARY BODY.

The pituitary body situated in the mid-brain, under the floor of the third ventricle, not larger than a small almond, instead of being a vestigial and useless organ, as once thought, is now found to be the most important organ in the body, being the nerve centre of all vital processes—governing as it does, the body's immunizing functions, and controlling all vegetative or somatic functions of the body, the circulation, respiration, nu-

trition and locomotion. It is divided into two lobes, anterior and posterior.

The admirable histological study of the pituitaries by H. J. Berkley and Sajous, shows the anterior lobe to be a highly vascular organ full of blood, richly supplied in a net work of capillaries, supported by a sparce frame work of connective tissue, from which spring a vast number of nerve fibres which form a nerve-chain, passing through the poterior lobe, its cocertre, into the tubercinrum and thence with the spinal cord down through the cervico-thoracic sympathetic ganglia to the splanchnic nerve, then to the solar plexus, and thence to the adrenals.

The predominating feature of the anatomical relations between the adrenals and the anterior lobe, is the connection with the sympathetic system, which proves that this lobe is the supra-renal centre. Indeed, we have abundant evidence of the control which this centre has over the adrenals adduced by the experiments of Vassale and Sacchi, who have shown that the removal of the pituitary gives rise to symptoms of suprarenal insufficiency.

Dreyer's demonstration that stimulation of the splanchnic nerve increases the epinephrin content in the supra-renal veins, has lately been confirmed by many observers. This would seem to prove my contention that the adrenal secretion is under the control of the sympathetic system and that the sympathetic nerves have their origin in the pituitary body.

Cannon and Cryle seem to think that the psychic influence is a potent factor in the morbid increase of adrenal and thyroid secretions; in fact, the latter has known this factor alone to cause death in serious cases of exophthalmic goiter, all of which proves in the light of our views that Sajou's theory is correct in that the sympathetic centre originating as it does in the pituitary body where all psychic impressions, such as shock and fright, are received, is capable and does control the functional activity of both the adrenals and thyroid glands with

which it is intimately connected by nerve fibre, thereby increasing or decreasing their activity according to the quality and quantity of the irritant acting on its centre. Weggars, of Ann Arbor, in April, 1911, stated that the anterior pituitary elaborates a secretion that is necessary to life and normal metabolism and development.

The posterior or the neural lobe is the general centre of the organism from which arises all of the nervous energy transmitted by the bulbar centres. The primary function then, of this organ, is to transform chemical energy into mechanical energy. It is an aggregation of neurons, and as Berkley suggests, its histological characters would mean that it is the seat of some nervous function of a high order, a perfect maze of nervous elements, some of which have not so far been found elsewhere in the organism. While the anterior or glandular lobe has but one set or nerve roots of the sympathetic which governs the adrenals and muscular fibres of the artrioles, this lobe has centering in it the nuclei of all the cranial nerves; it is the centre for the vaso-motor system, in other words, it is the commune sensoriam which receives the impression of sensation and motion, of shock, of trauma, and of the passions, such as grief, joy, fright. All of which leads us to the thyroid glands as a connecting link in the vital process.

Thyroid and Parathyroids.

Equally striking is the evidence pertaining to the functions of the thyroid apparatus.

Since 1895, when Bauman in his pioneer work on the thyroids, discovered iodothyrine, in the colloid secretions of the thyroid glands, the functions of the thyroid apparatus have assumed a more commanding importance, especially from a pathological standpoint, as in hyperthyroidism.

Some physiologists maintain that the functions of the thyroid is to sustain nutrition and promote the development of the body; others say their secretions destroy toxic substances in the blood, both of which is true; but we believe further, that it

can be satisfactorily shown, that the thyroid secretion sustains the functional activity of the anterior pituitary body, and thereby the whole suprarenal system, through which, and by which, the whole vital process, metabolism is sustained. While at the same time, the parathyroids secrete a like substance rich in phosphorus which jointly with the iodine contents is poured into the blood stream which in conjunction with the oxygen-laden plasma forms the "opsonins and glutinins," the great immunizing agents which sensitise all bacteria and render them fit for ingestion and digestion by the leucocytes. Hence we see that the thyroids and para-thyroids supply a link with the vital mechanism, on the one hand, and on the other, though the leucocytes which circulate in the glands, (depositing their moiety of nucleo-iodine content), and other link with external agents, introduced through the alimentary canal.

Hence we learn that over-activity or inefficiency of these glands is followed sooner or later with disaster and death.

Viewing these facts from the standpoint of therapeutics and immunity, it asserts itself of more than ordinary importance, because it places in our hands means, by which we can control the vital energies through the thyroid apparatus, and enhance the functional efficiency of the harmones in their co-ordinating processes through which the body protects itself against disease. Therefore we deduce the following propositions:

That the thyroid gland is but an auxiliary organ which secrets a fluid rich in iodine, which sustains the functional activity of the cerebral centres up to its normal standard which stimulates the activity of the supra-renal glands which in turn produces the adrenal harmone which circulating with the thyroid harmone jointly in the venous blood, is carried through the cardiopulmonary circuit where new chemical compounds or harmones are found, which are carried by the general blood stream to all the tissues including the nerve centres and the thyroid gland. Hence over-activity or inefficiency of any set of these glands establishes a vicious circle which, on the one

hand, is manifested by the syndrone exophthalmic goiter, and on the other hand, the opposite, myxœdema and cretinism.

Beebe lately remarks that he does not know positively upon what set of tissues the thyroid secretion acts, "but rather that most of the tissues in the body are in some was affected by this substance, perhaps in part through the medium of the nervous system." "We know," says he, "that it is connected in some way with the functions of oxidation in the body." Then he illustrates: "By the administration of thyroid to a cretin or a patient with myxœdema it is possible to increase the absorption of oxygen from twenty to seventy-five per cent.

This would seem to establish on a firm basis, Professor Sajous' conclusions in his histological studies of the adrenothyroid system, in which his following deductions seem warranted: (1) "That the thyroid gland, the anterior pituitary body, and the adrenals, are functionally interdependent, and constitute a system through which cardiac action, respiration, and general cellular oxidation are maintained." (2) "The thyroid gland sustains the normal functional activity on the anterior pituitary body, while the latter in turn maintains the normal activity of the adrenals."

And hence the converse is true, that when the thyroid secretion is poured in excess, into the blood stream, the pituitary is actively increased in function, and when the blood contains an insufficient amount of "thyrodase," the latter is passively decreased in functional activity.

If then, the thyroid and para-thyroid secretions sustain and control the pituitary bodies, what then stimulates the thyroid apparatus? This is the crux of the proposition. We answer that it is in all probability, the function of the corpuscles of the blood to gather in store from the food stuff in the alimentary canal the molecular entities of iodine and phosphorus which uniting with the adrenal secretions in its oxidizing career, in the systematic circulation, pass to and through the thyroid gland, which in turn are activated, according to the

power of the stimulus. Therefore excessive thyroid secretion by over-stimulating the nerve centres of the suprarenal glands give rise to symptoms of over-activity of the adrenals, and vice versa with insufficiency.

The Pancreas and Spleen.

We can give the pancreas only a cursory review. It has been shown by Bayliss and Starling that the hydrocloric acid of the gastric juice elaborates in the intestinal epithelia a harmone which, when absorbed by the leucocytes is transmitted through the blood vessels of the pancreas stimulates the latter principally the islands of Langerhans, to secrete the pancreatic juice which in passing with the blood to the spleen is stored up as a harmone which has been demonstrated lately by Zuelzer to be a peristaltic harmone of very powerful action in permanently obstinate constipation. The specific function of the internal secretion of the pancreas is its correlation with some other harmone in the manufacture of an anti-harmone which antagonizes and neutralizes the excessive action of the adrenal harmone in the production of glycosuria, even true diabetes.

Co-ordination of Intestinal Secretion.

In these brief statements we have emphasized only some of the specific actions of the definite chemical substances or harmones which constitute the basis of internal secretions. That the ductless glands are intimately related in the co-ordination of the body functions, there can be little doubt. The word, "Harmone" first coined by Starling, comes from a Greek root and means, "I incite, I stimulate," an easy designation for "a group of substances manufactured during the normal metobolic process of certain cells of the animal organism." Starling says their significance "lies in their dynamic influence on the living cell," and compares them therefore to alkaloids in their specific action. These harmones being secreted during the normal performance of the body functions and carried in

the blood stream to all the tissues must stimulate certain cells to specific action. In the language of Zuelzer, "They can, therefore, be regarded as chemical "reflexes" or chemical "messengers," which, by the way of the blood, mediate specific functional relations between distant organs."

This idea significantly expresses the great chemical, as distinguished from the nervous principle which has been contributed to modern physiology, first by Starling, and practically amplified by Dorhm and Zuelzer. Starling was the first to controvert, the old nervous theory of reflexes, upon which all hitherto physilogical reasoning was based, and substituted the chemical theory. He believes that a co-ordinated activity of all organs to a common purpose exists in all living beings, and that a correlation of the body functions can be brought about by chemical means. Zuelzer sums up the whole matter when he says, "In the light of our present knowledge we incline to the theory that the harmone producing organs, the vegetative nervous system and the organ or organs, which control the chemical reflex represent a uniform entity in which, lesion of any one of the component parts, can interfere with the aggregate effect."

Now that the functional relationship between the harmone producing organs has been shown through the intermediary of their chemical harmones, many clinical facts bearing on therapeutic remedies appear in a new light, and we can now hope that in the future we can with clarity and precision emancipate iiniternal medicine from the mazes of impericism and place her as an exact science, where she rightly belongs by the side of surgery, her sister science.

SERUM DIAGNOSIS OF SYPHILIS.

J. W. Squires, M.D., Charlotte.

Serum diagnosis of syphilis was given to us in 1906 by Wasserman, Neisser and Bruck. Since then a number of modifications of this reaction have been made. However, only one has stood the test of efficiency. This modification is that of Dr. Hideyo Noguchi of the Rockefeller Institute. Dr. Noguchi found that the anti-human hemolytic system was more accurate than the anti-sheep system, because there normally exists in human blood an anti-sheep amboceptor, which in a certain percentage of cases will make a positive reaction negative, if the original Wasserman technique is used.

In this paper I shall discuss the technique and principles of the Noguchi modification of the Wasserman reaction as I have used it more and think it more accurate than the original.

The principle of this reaction is based upon complement fixation involving two systems, a hemolytic and bacteriolytic.

It is necessary to explan the formatioin of these systems before giving a description of the reaction.

It is known that the blood serum of a person suffering from an infectious disease contains substances termed anti-bodies or amboceptors. These anti-bodies are thrown off or produced by the body cells upon being irritated by a germ or its toxin. In this way we are provided with an excellent means of protecting ourselves against infection, because the anti-bodies thus formed, sensitized by complement, have a destructive action upon the germ. In other words, the bacteria are dissolved or destroyed by the action of the anti-bodies and complement. This process of bacterial destruction is called bacteriolysis. The substances reacting together to produce this reaction constitute the bacteriolytic system which consists of antigen, antibody and complement. The antigen in this instance is the in-

vading germ, therefore, we may define antigen as any substance which, when introduced into the body, stimulates the formation of anti-bodies or amboceptors.

Complement is normally present in small amounts in all serum, and simply acts as a sensitizer to the anti-body so that it may destroy the germ.

Homologous with this system is the hemolytic which differs in that its antigen consists of red blood cells which when injected into a rabbit causes the formation of amboceptors. These when sensitized by complement cause the laking of red blood cells. This destruction of red blood cells is called hemolysis. The substances producing this change constitute the hemolytic system which consists of antigen, amboceptor and complement.

To sum up: In serum diagnosis we deal with two systems, one a bacterolytic, the other a hemolytic. We speak of amboceptor when referring to the hemolytic system, and anti-body when referring to the bacterolytic system.

The detection of syphilic anti-bodies in the blood serum of a patient is simply an application of these two systems.

The bacteriolytic being used to fix the specific anti-body, if it is a present. The hemolytic acting simply as an indicator to tell whether or not the reaction has taken place.

The factors concerned in the reaction are as follows: Antigen, specific anti-body, complement, hemolytic, amboceptor and human corpuscles.

The first of these factors, antigen, is an alcoholic extract of certain tissues, the most commonly used being heart, liver or kidney; this extract being tested and standardized according to certain rules.

The second, specific anti-body, is supposed to be present in the patient's blood we are testing.

Third, complement, which is obtained from the germ of the guinea pig.

Fourth, hemolytic amboceptor, which is obtained from the

rabbit, following successive injections of human corpuscles at definite intervals.

Fifth, human corpuscles, washed and freshly prepared.

Having a thorough knowledge of the mode of preparation and use of the agents entering into the reaction, the technique is comparatively simple, and is as follows: Select a test tube rack containing two rows of holes, as for each test, two test tubes are required, one in front and its control in the rear.

First, place a drop of the serum to be tested in both tubes.

Second, two units of antigen are added.

Third, two units of complement.

Now, incubate the tubes at 37° centigrade for one hour. At the expiration of this time, the fourth and fifth factors are added, which are amboceptor and human corpuscles. Then the tubes are again incubated for one hour. After this second incubation the reaction is complete and is ready to be recorded. If we have a positive reaction, there is total inhibition of hemolysis, that is, the corpuscles have gravitated to the bottom of the tube and a clear fluid is seen above. If a negative reaction, hemolysis has taken place, that is, the corpuscles have been completely disintergrated and the fluid presents a deep, pinkish red transparent appearance. The reaction is very clear-cut and can be read unmistakably by anyone.

As previously stated in this paper, the reaction depends upon two systems, a bacteriolytic and hemolytic. Some may ask why we add this second system. It is because the bacteriolytic system alone gives no indication of what has taken place, therefore, we are compelled to add this second system, to tell us whether our complement has been fixed by the specific antibody for which we are testing.

Now, as to the value of this reaction from a clinical standpoint. It has proven itself to be as certain, and it is not exaggerating to say, surpasses any serum reaction used in the practice of medicine today, and in cases presenting vague, uncertain symptoms, the reaction is of untold value.

I dare say there is not a physician here who has not had the pleasure of attempting to solve the problem, "When can I dismiss my patient and assure him that he is entirely clear of this disease?" Or, if not this, no doubt you have been consulted by patients who give a history of syphilis ten or twenty years previous, and now desire to have positive advice in regard to their condition. In cases presenting vague, uncertain histories, in different forms of latent syphilis, and as a differential diagnosis from other diseases, the serum reaction is the only positive means of answering these troublesome problems. Can we clear up those uncertain diagnoses? Is it possible to dismiss a patient and assure him that no danger would attach should he desire to marry? I maintain that we can. This reaction, if intelligently performed, gives absoulte proof as to a syphilitic infection, and at the same time, in many cases, relieves the physician of a great burden and gives the patient unlimited joy. I predict that in the course of a few years the serum diagnosis of syphilis will be universal.

REPORT OF THE BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA, CHARLOTTE MEETING, JUNE, 1911.

REGISTRATION:

For reciprocity	10	
For oral examination	9	(Granted to men with some years experience in practice).
For written examination	114	
Total	133	

PASSED:

By reciprocity	10
Oral examination	9
Written examination	83

FAILED:

On written examination	27
Expelled	1
Withdrew	3
	31

The following were granted license by reciprocity:

Name and Address.	*School and State.*
Craig, S. D., Winston-Salem	Tulane, 1908, Virginia
Cauthen, R. S., Charlotte	Balto. Med., 1902, Virginia
Griffith, F. W., Asheville	Johns Hopkins, 1906, Maryland
Grigg, Wm. F., Oriental	Med. Coll. Va., 1909, Virginia
Marshburn, C. B., Bonifay, Fla	P. & S., Atlanta, 1906, Georgia
McKay, W. H., Charlotte	Jeff., 1910, N. C. Med., 1909, South Carolina
MacLaughlin, L. E., Winston-Salem	Univ. Ga., 1907, Georgia
Newcomb, P. O., Winston-Salem	Univ. Ill., 1904, Wisconsin
Shoemaker, Harlan, Shelby	Univ. Pa., New York

The following passed a successful examination:

Adcock, Jno. H	New York
Andrews, N. H	Buie
Anthony, J. E	Gastonia
Ayers, Thos. D	Roland
Barefoot, M. L	Dunn
Brenizer, A. G. B	Charlotte
Bagley, J. C	Fayetteville
Baker, W. S	Arden
Bazemore, B. S	Windsor
Boone, S. B	Jackson
Bullock, E. S	Wilmington
Bradshaw, J. W	Relief
Butler, Bruce F	Clinton
Brown, W. R	New York
Bingham, W. O	Zionville
Blanchard, T. W	Cliden
Bowers, M. A	Thomasville
Beasley, E. Bruce	Colerain
Brabson, T. H	Franklin
Carter, J. E. T	Mars Hill, Oral.

Cutchin, J. H.....Whittakers
Cox, G. S.....Dothan
Couch, V. F.....Jennings
Caughman, B. D., Columbia, S. C.
R. F. D. No. 1.
Carr, Jno. D. (col.).....Lexington
Christmas, M. D.....Durham
Craig, T. M.....Waxhaw
Cummings, M. P.....Reidsville
Carmichæl, T. W.....Roland, Oral.
Cœ, S. C.....Greensboro
Daniels, F. L. (col.) .....Salisbury
Delany, L. T.....Raleigh
Dawson, Alonzo.....Oriental
Dameron, E. L.....Bessemer
Ellen, C. J.....Battleboro
Floyd, L. D.....Green Sea, S. C.
Griffin, T. A.....Clayton
Gold, T. B.....Lattimore
Gamble, Jno. R.....Crumpler
Hackney, Ben. H.....Bynum
Hawkins, O. H. A. (col.)
Louisburg
Holoway. W.H. (col.) E. Durham
Hawkins, R. W.....Oxford
Horton, M. C.....Brooklyn, N. Y.
Oral. (Wakefield)
Hutchison, S. S..... Mt. Gilead
Hunter, W. B.....Gastonia
Herbert, F. L.....Andrews
Harrison, Harvey .....Statesville
Head, Wm. T.....Melvin Hill
Hawes, S. J.....Atkinson
Ivey, H. B.....LaGrange
Jackson, W. L.....Greensboro
R. F. D. No. 3
Jones, S. C. (col.) .....Chapel Hill
Joyner, Wm. L. (col.) ....Tarboro
Johnson, Lee.....Asheville
Jacocks, W. P. .....Philadelphia
6309 Locust St.
Judd, E. C.....New Hill
Kerns, T. C.....Salisbury
Kernodle, C. E.....Altamahaw
Keiger, O. R.....Tobaccoville
Little, A. L.....Waco
Lee, P. H.....Union Springs, Ala.
Moore, Oren.....Charlotte
Miller, T. G.....Statesville
Miller, J. H.....Salisbury
Moore, R. A.....Rural Hall
Mendez, A. A.....Brooklyn, N. Y.
Oral.
Morgan, A. D.....————
Myers, A. H.....N. Wilkesboro
McMillan, H. D.....Red Springs
McCuiston, A. M., Winston-Salem
Norman, J. S.....Bladenboro
Naff, G. M.....Huntdale
Powell, H. H.....Auburn
Pitts, W. I.....Tarboro, Oral.
Pemberton, J. deJ.....Philadelphia
Episcopal Hospital
Person, T. E.....Freemont
Payne, R. L.....Monroe
Plunkett, F. O.....Richmond, Va.
care Va. Hospital
Patterson, Jno. A.....Shelby
Page, O. C.....Cary
Palmer, Marion.....Tryon
Proctor, H. L.....Caroleen
Quittner, S. S.....—— — - -Oral.
Railey, S. J.....Como
Raby, J. G.....Ahoskie
Root, A. S.....Raleigh
Ranson, J. L.....Charlotte
Riter, J. F.....Fontana, Oral.
Russell, J. Milton.....Canton
Ramsey, J. T.....Newell
Speas, W. P.....Cana
Stack, R. E.....Bakersville
Squires, J. W.....Charlotte
Shaw, Colin .....Maysville
Sherouse, G. W.....Cordova
Speas, Dallas C.....Winston-Salem
R. F. D. No. 7
Scott .....Washington, D. C.
417 T. St. N. W.
Shipp, Geo. W.....Hewton
Shoun, J. G.....Fontana
Thomas, Wm. N.....Oxford
Terry, Wm. C.....Rockingham
Timmons, H. L.....Fayetteville
Liles, N. P.....Wadesboro
Trippe, C. M.....Charlotte
Trent, L. B.....Leaksville
P. O. Cantonville, M.D., care
Marlen Lodge.
Taylor, B. C.....Stanley
Warren, R. L.....Dunn, Oral.
Wright, S. C.....Elizabeth City
Whittington, J. B.....East Bend
Whims, T. G.....Lasker
Warren, R. F.....Hurdle Mills
Ward, O. W.....Norfolk
Sarah Leigh Hospital
Waller, C. E.....Cherokee
Whittle, Charlton Cash
Greensboro
Whittaker, F. C.....Enfield
Walker, L. K.....Surrie
Wishart, Wm. E.....Charlotte
Wilkins, J. C.....Burlington
R. F. D. No. 2
Yokley, R. V.....Lexington

The questions asked by the different members of the Board were as follows:

SURGERY.

L. B. McBrayer, M.D., Asheville:

1. *Cholelithiasis*: (a) What is it? (b) give one or two of the most important ingredients; (c) name one or two bacilli most commonly found; (d) after what disease is it most common; (e) name one or two routes of infection; (f) give three or four of the most common symptoms; (g) suggest treatment.

2. *Organic Stricture Male Urethra*: (a) Define it; (b) what disease is its most frequent cause? (c) describe role of cicatricial tissue in; (d) what effect does alcohol have? (e) how would you make diagnosis? (f) give treatment briefly.

3. *Epistaxis*: (a) What is it? (b) what general diseases sometimes cause it and after what age? (c) give treatment briefly.

4. *Potts Disease*: (a) What is it? (b) why the name? (c) what particular bacillus is the cause and how does it reach the point; (d) in abscess of the last two dorsal or lumbar vertebræ where does the abscess point and why? (e) what is the central idea of treatment aside from dietetic and hygienic?

5. (a) In infection with suppuration beneath the deep palmer fascia where would the pus point and why? (b) in incising an abscess as (a) where would you make your incision? (c) what important artery is it wise to avoid, and (d) what is the landmark in avoiding this artery?

6. (a) What is volvulus? (b) state specifically what part of anatomy usually involved; (c) what is intussusception? (d) state specifically what part of anatomy usually involved; (e) what is the intussuscipiens? (f) what is the intussusceptum? (g) name two or three prominent symptoms of obstruction of the bowel; (h) when is the proper time to operate in such cases, and (i) what is the prognosis in operation after 48 hours?

7. *Hypertrophied Prostate Gland*: (a) What is first symptoms? (b) name different structures of gland that may be involved; (c) at what age does it usually occur? (d) what condition makes operation imperative? (e) describe operation for perineal prostatestomy.

8. *Thyroidiectomy*: (a) In this operation what two important structures is it wise to avoid? (b) give rule for avoiding them; (c) after operation should tetany occur what important structures would you consider you had removed and what treatment would you give? (d) if post-operative myxœdema should occur what treatment would you give? (e) What is the cause of cretinism and what is the treatment?

PHYSIOLOGY AND HYGIENE.

BENJ. K. HAYES, M.D., OXFORD.

1. Give average daily secretion and chemical reaction of the following, stating cause of reaction. When enzymes are present name them: Saliva; gastric juice; pancreatic juice; bile; urine; sweat.

2. What is the process called when blood becomes laked? Name two general classes of white blood corpuscles. What is temporary increase of white blood corpuscles called? When white blood corpuscles destroy pathogenic bacteria what is the process called?

3. In what form do carbohydrates reach the liver. From what structure is bile pigment formed (be specific). Name two substances (not bile) formed in liver. Name two substances in bile that are excretions.

4. Name the diseases which are thought to be the result of, or are in some way associated with, defective metabolism of the following organs: Thyroid gland. (a) When excessive. (b) When deficient. (c) Parathyroids. (d) Supra renal capsule. (e) Islands of Langerhans. (f) Pituitary body.

5. Name the substance found in excess in cows milk that

renders it difficult for infants to digest. To what general class of food stuffs do this substance belong? Waht other substances found in milk belong to this class?

6. What is the condition of an eye called when the vision (refraction) is: Normal? Senile? Near sighted? Far sighted? When refraction is different in different meridians? When eyes tire from over use, state what organ is the chief sufferer from fatigue?

7. When colon bacilli are found in water what do they indicate?

8. Give number of cubic feet required per individual (a) in sleeping apartments? (b) in sitting apartments? (c) how often must the air be renewed?

ANATOMY.

W. W. McKenzie, M.D., Salisbury.

1. Describe the sympathetic nerve, naming and locating the principal ganglia.

2. Describe the thyroid gland.

3. Give origin, course and branches of brachial artery.

4. Name the articulations of the occipital bone.

6. Describe the sternum, its articulation and the important muscles attached to it.

6. Give the gross and the topographic anatomy of the pancreas.

7. What histologic changes occur in acute simple inflammation?

8. Describe hypertrophy and give its etiology and pathologic anatomy.

9. In the anatomy of the brain what is the corpus collosum? Describe its connections.

10. Describe the crystalline lens, and state what tissues are in contact with it and how.

Answer only eight questions.

CHEMISTRY AND DISEASES OF CHILDREN.

J. L. Nicholson, M.D., Richlands.

1. Give not fewer than five each of the verbal prefixes and affixes, as applied to chemical compounds, explaining their significance and giving examples of their use.

2. Present a process for the manufacture of acetanelid and state its properties and physiologic action as well as its toxicologic effect upon the organism.

3. Discuss the halogen derivitives of methane, presenting (1) their names and formulas; (2) their general properties or characteristics; (3) their value as therapeutic agents.

4. Enumerate the predominating inorganic constituents of muscles, and offer an explanation of the change from an amphoteric reaction during inactivity to an acid reaction during exercise.

5. Define synthesis, and cite several synthetic processes that take place in normal metabolism.

6. How would you distinguish between serum albumen that may be found in urine and other coagulable proteins.

7. Discuss the acetone bodies; setting forth, (1) their names and probable source or sources; (2) abnormal conditions under which they may appear; (3) the evidence of their presence, and (4) the necessary steps to their elimination and prevention.

8. State the characteristics of the infant stool; (1) in health; (2) in acute intestinal indigestion; (3) in acute ileo colitis.

9. State the principal causes, both predisposing and exciting of acute convulsions in infancy.

10. Discuss the rationalle of the present methods of artificial infant feeding.

PRACTICE OF MEDICINE.

H. H. Dobson, M.D., Greensboro.

1. Differentiate between pericarditis with effusion and pleurisy with effusion.

2. How would you differentiate general odema of cardiac incompetency from that of portal obstructions?

3. How would you distinguish mitral insufficiency from functional systolic murmurs?

4. Differentiate multiple neuritis (pseudo tabes) and locomotor ataxia.

5. (a) Give normal blood pressure in man, woman and child. (b) State in what conditions high blood pressure alone may lead to an early diagnosis.

6. Give laboratory and clinical findings in remittent malarial fever (aestivo autumnal) and typhoid fever in first week.

7. (a) Define dysentery. (b) Name the varieties, etiologically.

8. Differentiate between the pains of hepatic, renal and lead colic.

9. (a) What is the immediate and remote effects of hyperchlorhydria on starch digestion? (b) What effect would anacidity of the stomach have on starch digestion?

10. How would you distinguish hysteric paralysis from organic paralysis?

OBSTETRICS AND GYNECOLOGY.

JOHN C. RODMAN, M.D., WASHINGTON.

1. Describe the uterus and appendages (ovaries and fallopian tubes).

2. Name the varieties of presentation of the fœtus, and possible positions of each.

3. What are the causes of abortion? Describe your treatment of a septic, incomplete abortion (retained placenta), third month.

4. What is "Phlegmasia Alba Dolens?" Cause, treatment and prognosis?

5. Define dystocia. Name the anomalies of (a) expellent forces, (b) passages, (c) fœtus.

6. Describe the mechanism of labor in a R. O. P. presentation.

7. What precautions would you take, in regard to the fœtus, in a breech presentation, and why?

8. Give the causes of hemorrhage in a non-pregnant uterus, and the treatment of each.

MATERIA MEDICA AND THERAPEUTICS.

JOHN BYNUM, M.D., WINSTON-SALEM.

1. How does empirical differ from rational therapeutics and which is the more scientific?

2. Name drugs that exercise a selective action upon (a) the uterus (b) the pupil (1) as dilators (2) as constrictors (c) the arterioles (d) the kidneys (e) the skin.

5. Discuss (a) the relative merits of chloroform and ether as general anesthetics (b) and state the signs indicative of danger in their use.

4. Define alkaloids and state why they have less therapeutic and toxic effects upon the organism when administered by mouth rather than hypodermically.

5. State (a) the physiologic action of hyoscin (b) its physiologic antedote.

6. What symptoms are produced by toxic doses of the following drugs: Strychnine, morphine, atropin, carbolic acid and acetanalid. Give antedote for each.

7. Compare the physiologic action of dignitalis with that of strophanthus.

8. Give the source, physiologic action and therapeutic uses of castor oil, ergot, calomel, quinine and bismuth respectfully.

9. State the name and dose of two drugs belonging to each of the following classes; Peristalics, silagogues, sudorifics, tænicides, galatogogues.

10. Describe the technic of hypodermoclysis and indicate the circumstances under which it is of service as a therapeutic agent.

Members of the Component County Medical Societies of the Medical Society of the State of North Carolina, June 21, 1911

ALAMANCE COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, Walter E. Walker, Graham Med. Coll. of Va., 1903.	1903	1903
Secretary, J. N. Taylor, Burlington Med. Coll. of Va., 1903.	1901	1911
Faucette, Thos. S., Burlington Balto. Med. Coll., 1893.	1893	1896
Pichett, Jno. A., Burlington, R. F. D. Univ. Nashville, 1894.	1894	1904
Stafford, W. G., Burlington	——	——
Walker, L. A., Burlington Univ. Coll. Med., Va., 1899.	1899	1904
Goley, W. R., Graham	——	——
Long, George W., Graham Univ. Pa., 1877.	1877	1877
McPherson, J. W., Haw River Balto. Med. Coll., 1898.	1898	1898
McPherson, S. D., Haw River Univ. Md., 1903.	1903	1903
Moser, W. D., Burlington	——	——
Wells, J. S., Mebane	——	——

BEAUFORT COUNTY SOCIETY.

President, D. T. Tayloe, Washington Bellevue Med. Coll., 1885.	1885	1904
Secretary, H. W. Carter, Washington Univ. Va., 1895.	1895	1910
Kellon, Wm. D., Union P. & S., Balto., 1880.	1887	1904
Nicholson, P. A., Washington P. & S., Balto., 1887.	1889	1905
Staley, S. W., Aurora Med. Coll. S. C., 1901.	1901	1904
Hardy, Ira M., Washington Med. Coll. Va., 1901.	1902	1904
Blount, J. G., Washington Bel. Med. Coll., 1892.	1892	1904
Hunter, H. H., Pinetown Med. Coll. Va., 1900.	1900	1904
Rodman, John C., Washington Bel. Med. Coll., 1892.	1892	1904
Nicholson, J. T., Bath P. & S., Balto., 1885.	1885	1904
Nicholson, J. L., Washington Univ. Md., 1904.	1904	1900
Tayloe, Armstead K., Washington Univ. Coll. Med., Richmond, 1897.	1896	1907

Members and Address.	*Licensed.*	*Joined State Society.*
Windley, Chas. T., Belhaven P. & S., Balto., 1893.	1893	1910
Potter, W. T., Edward Med. Coll. Va., 1910.	1910	1910
Tayloe, Joshua, Washington Bel. Med. Coll., 1892.	1892	1904

BERTIE COUNTY SOCIETY.

Secretary, Jno. L. Pritchard, Windsor P. & S., Balto.	1906	1907

BLADEN COUNTY SOCIETY.

President, Geo. L. Clark, Clarkton Univ. N. Y., 1876.	——	1904
Secretary, Newton Robinson, Elizabethtown Univ. Pa., 1869.	——	1904
Evans, L. B., Clarkton	——	——
Gatlin, O. A., Elizabethtown Univ. Md., 1910.	1910	1911

BRUNSWICK COUNTY SOCIETY.

President, E. G. Goodman, El Paso	——	——
Secretary, J. Arthur Dosher, Southport	——	——

BURKE COUNTY SOCIETY.

President, Albert Houck, Morganton P. & S., Balto., 1884.	1891	1891
Secretary, F. B. Watkins, Morganton Jeff. Med. Coll., 1907.	1907	1910
Taylor, Isaac M., Morganton P. & S., N. Y., 1882.	1883	1903
Warlick, E. Sol., Morganton Vanderbilt, 1881.	1881	1903
McCampbell, John, Morganton Balto. Med. Coll., 1894.	1895	1903
Hennessee, E. A., Glen Alpine Chattanooga Med. Coll., 1900.	1902	1903
Phifer, Edward W., Morganton N. C. Med. Coll., 1902.	1902	1903
Riddle, Joseph B., Morganton Vanderbilt, 1898.	1904	1904
Hall, James K., Morganton Jeff. Med. Coll., 1904.	1906	1905
Anderson, Paul V., Morganton Univ. of Va., 1904.	1904	1906
Beall, Louis G., Morganton N. C. Med. Coll., 1906.	1906	1907
Ross, Chas. E., Morganton Univ. Md., 1889.	1889	1909
Warlick, E. S., Morganton	——	——

Members and Address.	*Licensed.*	*Joined State Society.*
BUNCOMBE COUNTY SOCIETY.		
President, C. E. Cotton, Black Mountain	—	—
Secretary, G. S. Tennent, Asheville	—	—
Ambler, C. P., Asheville	—	—
Anderson, J. G., Asheville	—	—
Archer, J. I., Black Mountain	—	—
Ballard, A. M., Asheville	—	—
Battle, S. W., Asheville	—	—
Briggs, H. H., Asheville	—	—
Brookshire, H. G., Leicester	—	—
Brownson, W. C., Asheville	—	—
Buckner, R. G., Asheville	—	—
Calloway, A. W., Asheville	—	—
Carroll, J. L., Asheville	—	—
Carroll, R. S., Asheville	—	—
Cheesborough, T. P., Asheville	—	—
Clemenger, F. J., Asheville	—	—
Clontz, W. J., Alexander	—	—
Cocke, J. E., Asheville	—	—
Costello, M. J., Asheville	1910	—
Medico Chir., Phila., 1896.		
Davis, J. C., Chandler	1909	—
Atlanta School of Med., 1909.		
Dunn, W. L., Asheville	—	—
Eckel, O. F., Asheville	—	—
Elias, L. W., Asheville	—	—
Fletcher, M. H., Asheville	—	—
Frazer, T., Asheville	—	—
Gardner, G. D., Asheville	—	—
Glenn, E. B., Asheville	—	—
Greene, J. B., Asheville	1910	1911
Univ. of Va., 1893.		
Gill, J. N., Weaverville	—	—
Harris, J. A., Alexander, R. F. D. No. 2	—	—
Herbert, W. P., Asheville	1910	1911
Univ. Va., 1907.		
Hunnicutt, W. J., Asheville	—	—
Johnson, A. E., Asheville	—	—
Jordan, C. S., Asheville	—	—
Landis, B. F., Black Mountain	—	—
McBrayer, L. B., Asheville	—	—
McCracken, C. M., Fairview	—	—
Meriwether, F. T. Asheville	—	—
Merrimon, L. A., Asheville	—	—
Minor, C. L., Asheville	—	—
Morris, E. R., Asheville	—	—
Orr, C. C., Asheville	—	—
Orr, P. B., Asheville	—	—
Paquin, P., Asheville	—	—
Pritchard, A. T., Asheville	—	—
Purefoy, G. W., Asheville	—	—
Reed, C. E., Asheville	—	—
Reeves, A. F., Asheville	—	—

Members and Address	*Licensed.*	*Joined State Society.*
Reynolds, C. W., Asheville	——	——
Ringer, P. H., Asheville	——	——
Von Ruck, K., Asheville	——	——
Von Ruck, S. H., Asheville	——	——
Russell, E. R., Asheville	——	——
Sawyer, J., Asheville	——	——
Sevier, J. T., Asheville	——	——
Sevier, D. E., Asheville	——	——
Smith, O., Asheville	——	——
Stevens, M. L., Asheville	——	——
Terrell, A. J., Black Mountain	——	——
Weaver, H. B., Asheville	——	1881
Whittington, W. P., Asheville	——	1882
Williams, J. H., Asheville	——	1881
Zimmerman, C. St. V., Asheville	——	1881

CABARRUS COUNTY SOCIETY.

President, G. D. Moose, Mt. Pleasant Univ. Md., 1907.	1907	1910
Secretary, J. E. Smoot, Concord Balto. Med. Coll., 1893.	1894	1902
Fail, M. A., Mt. Pleasant Jeff. Med., 11891.	1891	1908
Archey, L. M., Concord P. & S., Balto., 1880.	1880	1880
Caldwell, D. G., Concord Univ. Md., 1885.	1885	1885
Lafferty, J. S., Concord Univ. Md., 1881.	1881	1890
Wallace, J. W., Concord N. C. Med., 1907.	1907	1908
Black, J. C., Pioneer Mills Univ. Md., 1891.	1891	1899
Young, R. S., Concord N. Y. Univ. Med. Coll., 1881	1882	1882
Gouger, G. J., Tulin Univ. Med., 1891.	1891	1899
Pharr, Theo., Harrisburg Jeff. Med., 1875.	1881	1881
Matthews, J. M., Mt. Pleasant Univ. Tenn.	——	1899
King, R. M., Concord Jeff. Med., 1903.	1903	1905
Rogers, F. O., Concord Univ. Md., 1901.	1901	1901
Grier, S. A., Harrisburg Jeff. Med., 1879.	——	1904
Flow, J. W., Kannapolis N. C. Med., 1898.	1903	1904
Pemberton, W. D., Concord Univ. Med., 1887.	1887	1887

Members and Address.	*Licensed.*	*Joined State Society.*
Yow, I. A., Georgeville	1907	1910
N. C. Med., 1906.		
Cauble, H. H., Kannapolis	1907	1910
N. C. Med., 1907.		
Burleyson, L. N., Concord	1891	1904
Univ. Md., 1891.		
McFayden, P. R., Concord	——	——

CALDWELL COUNTY SOCIETY.

President, A. A. Kent, Lenoir	1885	1904
Jefferson, 1885.		
Secretary, W. P. Ivey, Lenoir	1885	1885
Univ. Md., 1883.		
Carter, G. H., King's Creek, R. F. D.	1899	1904
Univ. N. Y., 1899.		
Flowers, G. E., Granite Falls	——	1904
Southern Med. Coll., 1884.		
Flowers, B. G., Granite Falls	——	——
McNairy, C. B., Lenoir	1893	1905
P. & S., Balto., 1893.		
Wilson, C. L., Lenoir	1893	1905
Chattanooga Med. Coll., 1893.		
Corpening, Oscar J., Granite Falls	1906	1906
Univ. Coll. Med., Richmond, 1906.		
Moore, J. C., Mortimer	1906	1904
Univ. Coll. of Med., Richmond, 1906.		
Goodman, A. B., Lenoir	——	1904
N. C. School of Med.		
Hickman, M. T., Hudson	1909	——
Univ. Med. Col., Richmond, 1909.		
Storie, J. G., Proctor	——	——

CARTERET COUNTY SOCIETY.

President, George Davis, Beaufort	1902	1904
Ky. Sch. Med., 1902.		
Secretary, K. P. B. Bonner, Morehead City	1905	1905
Med. Coll. Va., 1905.		
Adams, L. C., Atlantic	1903	1906
N. C. Med. Coll., 1903.		
Clarke, F. M., Beaufort	1894	1904
P. & S., Balto., 1894.		
Duncan, C. L., Beaufort	1902	1904
Univ. Md., 1902.		
George, D. S., Marshallberg	1903	1903
N. C. Med. Coll., 1903.		
Headen, W. E., Morehead City	1890	1891
Univ. Md., 1891.		

CASWELL COUNTY SOCIETY.

President, A. S. Mallory, Yanceyville	1898	1906
Ky. School of Med., 1897.		

Members and Address.	*Licensed.*	*Joined State Society.*
CHEROKEE COUNTY SOCIETY.		
President, B. G. Webb, Andrews	1886	——
Louisville, 1885.		
Secretary, W. C. Morrow, Andrews	1909	1909
A. S. M., Atlanta, 1909.		
Hill, Julius N., Murphy	——	——
Louisville, 1909.		
Meroney, B. B., Murphy	1909	1909
Adams, N. B., Murphy	——	——
Heighway, S. C., Murphy	——	——
McKaig, F. G., Andrews	——	——
Alabama Med., 1890		
CLEVELAND COUNTY SOCIETY.		
President, L. V. Lee, Lattimore	1897	1904
Atlanta Med., 1894		
Secretary, W. F. Mitchell, Shelby	1900	1904
Univ. Md., 1890.		
Grigg, W. T., Lawndale	1904	1904
Atlanta Med., 1891.		
Palmer, B. H., Shelby	1898	1904
Louisville Med., 1896.		
Royster, S. S., Shelby	1896	1904
Tenn. Med., 1890.		
Wood, J. W., Shelby, R. F. D.	1903	1904
Aydlette, J. P., Earls	1903	1904
Univ. Ky., 1901.		
Champion, C. O., Mooresboro	1902	1904
Atlanta Med., 1887.		
Oats, George, Grover	1896	1904
Univ. Louisville, 1894.		
Lattimore, E. B., Shelby	1896	1904
Bellevue, 1898.		
McBrayer, T. E., Shelby	——	1904
Wash. Univ., 1875.		
Houser, E. A., Fallston	——	1904
Hamrick, T. G., Shelby	1895	1904
P. & S., Balto., 1895.		
Shoemaker, H., Shelby	1910	1911
Univ. Pa.		
COLUMBUS COUNTY SOCIETY.		
President, H. B. Maxwell, Whiteville	1902	1902
Univ. Md., 1902.		
Secretary, L. Baggett, Tabor	1907	1908
N. C. Med. Coll., 1907.		
Northington, Jas. M., Boardman	1905	1909
Med. Coll. Va., 1905.		
Moore, T. V., Cronley	——	——
Floyd, A. G., Fair Bluff	——	1904
Univ. Md., 1885.		
Withers, S. M., Chadbourn	1902	1902
N. C. Med. Coll., 1902.		

Members and Address.	*Licensed.*	*Joined State Society.*
Smith, W. F., Chadbourn N. C. Med. Coll., 1904.	1904	1905
Blake, J. F., Chadbourn N. C. Med. Coll., 1905.	1905	1906
Crowell, W. M., Whiteville	——	——
Johnson, Floyd, Cerro Gordo Memphis Hosp. Coll. of Med., 1903.	1903	1909

CRAVEN COUNTY SOCIETY.

President, R. S. Primrose, New Bern Bellevue, 1890.	1890	1904
Secretary, N. M. Gibbs, New Bern Univ. Md., 1896.	1895	1907
Duffy, Francis, Hon. member, New Bern Univ. of Va., 1872.	1872	1872
Duffy, Levister, New Bern P. & S., Balto., 1880.	1885	1904
Duffy, R. N., New Bern Johns Hopkins, 1906.	1907	1907
Caton, G. A., New Bern Med. Coll. Va., 1898.	1898	1904
Bonner, Montjoie, New Bern	——	——
Watson, Walter, New Bern Univ. Pa., 1910.	1910	1911
Jones, R. DuVal, New Bern Univ of Md., 1896.	1897	1904
Patterson, J. F., New Bern Jefferson, 1906.	1906	1906
Rhum, J. F., New Bern	——	——
Street, N. H., New Bern	——	——
Pollard, Raymond, New Bern	——	——

CUMBERLAND COUNTY SOCIETY.

President, Geo. A. Graham, Raeford Univ. N. Y., 1876.	——	1904
Secretary, Wm. S. Jordan, Fayetteville Univ. N. C., 1906.	1906	1906
Averitt, K. G., Cedar Creek Balto. Med. Coll., 1893.	1893	1902
Bullock, T. C., Autryville P. & S., Balto., 1885.	1885	1904
Brown, Geo. W., Raeford Ky. School of Med., 1898.	1900	1904
Hayes, R. R., Fayetteville Univ. Coll. Med., Balto., Md., 1906.	1910	1910
Highsmith, J. F., Fayetteville Jeff. Med. Coll., 1889.	1889	1903
Highsmith, S., Fayetteville Univ. Coll. Med., Va., 1901.	1901	1902
Juat, Francis, Raeford Bum., Switzerland, 1884. Univ. of Pa., 1887.	1910	1910

Members and Address.	*Licensed.*	*Joined State Society.*
Lilly, J. M., Fayetteville	1903	1904
Univ. Coll. Med., Va., 1903.		
McGougan, J. Vance, Fayetteville	1893	1904
Univ. of Med., Balto., 1893.		
McKethan, D. G., Fayetteville	1899	1899
Univ. Coll. Med., Balto., 1899.		
McKethan, Jno. A., Fayetteville	1901	1904
N. C. Med. Coll., 1901.		
McNeill, J. W., Fayetteville	1876	1876
Bellevue Hops. Med. Coll., 1876.		
Olive, P. W., Wade	1907	1908
P. & S., Balto., 1907.		
Powell, R. A., Fayetteville	1909	1909
Univ. Coll., Med., 1907.		
Rose, A. S., Fayetteville	1901	1904
Univ. Coll. Med., Va., 1901.		
Thornton, Irene, Fayetteville	1908	1908
Woman's Med. Coll. of Balto., Md., 1908.		
West, T. Marshall, Fayetteville	1910	1910
Univ. Coll. Med., Balto., 1908.		
McNeil, J. M., Fayetteville	——	——

PERQUIMANS CHOWAN COUNTY SOCIETY.

President, T. A. Cox, Hertford	1907	1907
Univ. Md., 1892.		
Secretary, H. M. S. Cason, Edenton	——	——
Dillard, Richard, Edenton	1880	1880
Jeff. Med. Coll., 1879.		
McMillan, J. H., Edenton	——	1876
Univ. Md., 1876.		
Warren, J. W., Edenton	——	——
Hathaway, B. W., Edenton	——	——
Smith, A. W., Edenton	1902	1904
Univ. Md., 1902.		

DAVIDSON COUNTY SOCIETY.

President, W. J. Vestal, Lexington	1886	1893
P. & S., Balto., 1883.		
Secretary, D. J. Hill, Lexington	1893	1893
P. & S., Balto., 1893.		
Buchanan, E. J., Lexington	1892	1900
Univ. Md., 1892.		
Clodfelter, Chas. A., Lexington	1905	1906
P. & S., Balto. Md., 1905.		
Mock, Frank L., Lexington, R. F. D. 3	——	——
Zimmerman, R. U., Lexington, R. F. D. 4	1901	1904
N. C. Med. Coll., 1901.		
Hill, W. Lee, Lexington, R. F. D. 4	——	1910
Julian, C. A., Thomasville	1891	1893
Louisv. Med. Coll., 1888.		
Mock, J. H., Thomasville	1898	1904
Med. Coll. Va., 1898.		

Members and Address.	*Licensed.*	*Joined State Society.*
Peacock, W. J., Thomasville	—	—
Jeff., 1908.		
Easly, P. S., Thomasville	—	—
Cathell, J. E., Linwood, R. F. D. 1	—	1910
York, A. A., Linwood, R. F. D. 2	1907	1907
Chatt. Med. Coll., 1907.		

DAVIE COUNTY SOCIETY.

President, A. B. Byerly, Cooleemee	1896	1904
Univ. Coll., Va., 1896.		
Secretary, W. C. Martin, Mocksville	1888	1904
P. & S., Balto., 1888.		
Rodwell, J. W., Mocksville	—	—
Martin, J. F., Advance, R. F. D.	—	1908
N. C. Med. Coll., 1905.		
Tourny, R. L., Mocksville, R. F. D. 5	—	—

DUPLIN COUNTY SOCIETY.

President, John M. Faison, Faison	1885	1885
Univ. Va., 1885.		
Secretary, B. R. Graham, Wallace	1895	1895
Univ. Va., 1895.		
Carroll, J. W., Wallace	1903	1903
Univ. Md., 1903.		
Lauden, J. F., Chinquapin	1905	1907
Univ. Coll. Med., 1905.		
Coppedge, T. O., Kanansville	—	—
Kennedy, Geo. W., Beulanville	—	—
Williams, J. M., Warsaw	1902	1902
Univ. Md., 1902.		
Lane, J. L., Faison	1906	1906
N. C. Med. Coll., 1906.		
Carr, R. L., Rose Hill	1908	1908
Balto. Med. Coll., 1907.		

DURHAM COUNTY SOCIETY.

President, W. A. Graham, Durham	1901	1901
Univ. Pa., 1899.		
Secretary, T. S. Booker, Durham	1910	1910
Univ. Coll., Va., 1908.		
Adams, C. A., Durham	1892	1905
P. & S., Balto., 1892.		
Bitting, N. D., Durham	1907	1907
Jeff., Phila., 1907.		
Boddie, N. P., Durham	1883	1883
P. & S., Balto., 1883.		
Booker, L. S., Durham	1910	1910
Univ. Coll. Med., Va., 1908.		
Brooks, B. U., W. Durham	1903	1908
Univ. Md., 1905.		
Boone, W. A., Durham	1902	1904
Univ. N. C., 1902.		
Bowling, E. H., Durham	1890	1908
P. & S., Balto., 1891.		

Members and Address.	*Licensed.*	*Joined State Society.*
Cheatham, A., Durham Univ. Md., 1888.	1888	1888
Fassett, B. W., Durham Balto. Med., 1898.	1899	1901
Felts, R. L., Durham Univ. Md., 1898.	1899	1908
Graham, J. P., Durham Univ. Pa., 1901.	1902	1906
Graham, W. A., Durham Univ. Pa., 1899.	1901	1901
Hicks, C. S., Durham Univ. Md., 1904.	1904	1904
Hicks, W. N., Durham Med. Coll. Va., 1893.	1885	1901
Holloway, R. L., Durham Med. Coll. Va., 1893.	1893	1904
Johnson, N. M., Durham Wash. Univ., Md., 1876.	1879	1904
Jordan, A. C., Durham P. & S., Balto., 1881.	1885	1904
Mann, T. A., Durham Univ. Md., 1903.	1903	1903
Manning, J. M., Durham Belv. Med., 1882.	1884	1891
Moore, R. A., Durham Univ. Md., 1891.	1897	1893
Montague, S. S., Durham Jeff., Phila., 1910.	1910	1910
Olive, W. W., Durham Univ. Md., 1906.	1907	1908
Ross, Geo. H., E. Durham Univ. Tenn., 1899.	1899	1904
Teague, P. J., Durham Univ. Md., 1890.	1890	1898
Pierce, S. B., Durham Belv. Med., 1897.	1897	1897
Woodard, C. A., Durham Univ. Va., 1904.	1904	1907
King, M. N., Durham Univ. Md., 1898.	1910	1910
Stroud, W. A., Rougemont Univ. N. C., 1909.	1909	1911
Nichols, R. E., Gorman Med. Coll. Va., 1890.	1890	——

EDGECOMBE COUNTY SOCIETY.

President, J. J. Philips, Tarboro P. & S., N. Y., 1894.	1905	1905
Secretary, S. N. Harrell, Tarboro Univ. Md., 1897.	1897	1904
Staton, L. L., Tarboro Univ. N. Y., 1870.	1870	1900

Members and Address.	*Licensed.*	*Joined State Society.*
Thigpen, W. J., Tarboro Jeff. Med. Coll., 1900.	1900	1901
Green, W. W., Tarboro Univ. N. C.	1908	1909
Bass, S. P., Tarboro Univ. Va., 1906.	1907	1908
Wooten, A. M., Pinetops Univ. N. C., 1910.	——	——
Mercer, W. P., Elm City, R. F. D. Univ. N. Y., 1879.	1879	1904
Walton, C. B., Macclesfield Univ. Md., 1893.	1893	1907
Baker, J. M., Tarboro Univ. Md., 1879.	1879	1879
Speight, R. H., Whitakers, R. F. D. Univ. Md., 1870.	1875	1875

FORSYTH COUNTY SOCIETY.

President, A. Y. Linville, Winston-Salem Univ. N. Y., 1889.	1889	1896
Secretary, E. P. Gray, Winston-Salem Johns Hop. Med. Sch., 1906.	1907	1908
Bahnson, H. T., Winston-Salem Univ. Pa., 1867.	1869	1869
Bynum, John, Winston-Salem Univ. Coll. Med., Va., 1900.	1900	1900
Dalton, D. N., Winston-Salem Univ. N. Y., 1881.	1885	1886
Dalton, W. N. Winston-Salem	——	——
Davis, A. P., Winston-Salem Ky. Sch. Med., 1894. Geo. Wash. Univ., 1906.	1896	1904
Davis, T. W., Winston-Salem Med. Coll., Va., 1903.	1903	1905
Dowby, J. E., Winston-Salem Univ. of Med., 1909.	1909	1909
Fearington, J. P., Winston-Salem Univ. Md., 1887.	1887	1904
Johnson, W. M., Winston-Salem Jefferson, 1909.	1910	1910
Kapp, H. H., Winston-Salem Jeff. Med. Coll., 1901.	1901	1904
Lawrence, C. S., Winston-Salem Geo. Wash. Univ., 1908.	1908	1908
Linville, W. C., Winston-Salem	——	——
Lockett, E. A., Winston-Salem Univ. Pa., 1902.	1904	1904
Long, V. M., Winston-Salem N. C. Med. Coll., 1906.	1906	1907
Lott, H. S., Winston-Salem Univ. Ga., 1884.	1888	1888
Jewett, R. D., Winston-Salem Univ. Va., 1888.	1890	1890

Members and Address.	*Licensed.*	*Joined State Society.*
Pfohl, F. S., Winston-Salem Univ. Pa., 1894.	1898	1898
Spainhour, E. H., Winston-Salem Balto. Med. Coll., 1898.	1898	1898
Spencer, W. O., Winston-Salem Jeff. Med. Coll., 1891.	1891	1894
Summers, C. L., Winston-Salem Univ. Md., 1887.	1891	1896
Carlton, R. L., Kernersville Univ. Md., 1906.	1906	——
Justice, J. T., Kernersville N. C. Med. Coll., 1904.	1904	——
Flynt, S. S., Rural Hall P. & S., Balto., 1889.	1890	1906
Hammock, J. C., Walkertown P. & S., Balto., 1905.	1905	1905
Strickland, E. F., Bethania Univ. N. Y., 1887.	1887	1903
Williams, J. D., Lewisville Vanderbilt, 1898.	1898	1898
Bynum, Wade H., Germanton Univ. Coll. of Va., 1900.	1900	1900

FRANKLIN COUNTY SOCIETY.

President, S. P. Burt, Louisburg P. & S., Balto., 1896.	1896	1904
Secretary, H. A. Newell, Louisburg P. & S., Balto., 1906.	1906	1906
Babbitt, E. H., Louisburg, R. F. D. 4 Univ. of Md., 1877.	——	1886
Malone, J. E., Louisburg Bellevue, Md., 1875.	——	1904
Yarborough, R. F., Louisburg Columbia Univ., D. C., 1898.	1899	1899
Henderson, R. B., Franklinton Univ. of Md., 1887.	1887	1904
Harris, J. H., Franklinton Bellevue, Md., 1887.	1887	1904
Johnson, B. C., Louisburg, R. F. D. 1 Univ. of N. C., 1909.	1909	1910
Floyd, R. P., Louisburg, R. F. D. 1 S. C. Med. Coll., 1878.	——	1904
Newell, J. O., Louisburg P. & S., Balto., 1910.	1910	1910
Timberlake, R. E., Youngsville Jeff. Med. Coll., 1908.	1908	1910

GASTON COUNTY SOCIETY.

President, J. H. Jenkins, Dallas Ky. Sch. of Med., 1888.	1888	1904
Secretary, T. C. Quickel, Gastonia Tulane Univ., 1899.	1899	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Anders, M. G., Gastonia	1902	1902
Md. Med. Coll., 1901.		
Glenn, H. F., Gastonia	1900	1904
P. & S., Atlanta, 1900.		
Glenn, L. N., Gastonia	——	1904
Adams, C. E., Gastonia	1885	1904
Univ. of Md., 1878.		
Davis, W. W., Belmont	——	1904
Ky. Sch. of Md., 1872.		
Eddleman, H. M., Gastonia	——	1904
Ky. Sch. of Med., 1886.		
Garren, R. H., Bessemer City	1901	1904
Univ. of Nashville, 1900.		
Garrison, D. A., Gastonia	1896	1899
Louis. Med. Coll., 1896.		
Patrick, G. R., Lowell	——	1904
Univ. of Md., 1879.		
Reid, R. M., Gastonia	1890	1903
Univ. of N. Y., 1890.		
Reid, J. M., Lowell	——	1909
Robinson, Frank, Lowell	1878	1904
Louiv. Med. Coll., 1878.		
Sloan, J. M., Gastonia	1891	1904
Louisv. Med. Coll., 1891.		
Wilkins, S. A., Dallas	1903	1903
Univ. of Ky., 1902.		
Wilson, F. G., Gastonia	1896	1899
Univ. of Md., 1896.		
McCombs, C. J., Stanley	1905	1908
N. C. Med. Coll., 1905.		
Rhyne, R. E., Mt. Holly	1907	1908
N. C. Med. Coll., 1907.		
Anderson, James A., McAdensville	——	——
Augusta Med. Coll., 1904.		
McCoy, T. M., Mt. Holly	1906	1908
N. C. Med. Coll., 1905.		
Taylor, Geo., McAdenville	1906	1909
N. C. Med. Coll., 1906.		
Hall, P. B., Belmont	1903	1911
1903.		
Puett, Bessie V., Dallas	1909	1910
Woman's Med. College, 1909.		
Royster, T. H., Bessemer City	1908	1910
Univ. Coll. of Balto., 1908.		
Hunter, N. C., Stanly	1882	1904
P. & S., Balto., 1882.		
McLean, Chas. E., Belmont, R. F. D. No. 1	——	——
Orr, N. A., Belmont	——	——
Hood, J. S., Kings Mountain	——	——

GRANVILLE COUNTY SOCIETY.

President, S. D. Booth, Oxford	1885	1885
Med. Coll. Va., 1867.		

Members and Address.	*Licensed.*	*Joined State Society.*
Secretary, Benj. K. Hays, Oxford Univ. Coll. Med., Va., 1894.	1894	1896
Coggerhall, G. A., Oxford Balto. Med. Coll., 1879.	1899	1894
Meadows, E. B., Oxford, R. F. D. No. 1 Univ. Coll. Med., 1901.	1901	1901
Morris, J. A., Oxford, R. F. D. No. 2 Vandb. Univ., 1893.	1893	1899
Sanderford, J. F., Creedmore P. & S., Balto., 1890.	1890	1891
Hardee, P. R., Stern P. & S., Balto., 1885.	1885	1906
Taylor, Wm. L., Stovall	——	1907
Cannady, S. H., Oxford	——	——

GREENE COUNTY SOCIETY.

President, J. H. Harper, Snow Hill Jeff. Med. Coll., 1906.	1906	1906
Secretary, W. B. Murphy, Snow Hill Univ. Med. Coll., Va., 1903.	1903	1905
Edwards, G. C., Hookerton Bellevue, N. Y., 1883.	1883	1883
Stamey, E. L., Hookerton Atlanta Med. Coll., 1895.	1895	1904
West, Albert, Walstonburg Cinn. Med. Coll., 1887.	——	1904
Whittington, W. W., Snow Hill Louisville Med. Coll., 1895.	1895	1897

GUILFORD COUNTY SOCIETY.

President, C. S. Gilmer, Greensboro, R. F. D. Univ. N. Y., 1891.	1891	——
Secretary, Parran Jarboe, Greensboro Univ. Georgetown, 1905.	1906	——
Ashworth, W. C., Greensboro P. & S., Balto., 1892.	1892	——
Alford, A. E. B., Greensboro Columbia Univ., N. Y., 1909.	1909	——
Battle, J. T. J., Greensboro P. & S., Balto., 1884.	1884	——
Beall, W. P., Greensboro Jeff. Med. Coll., 1879.	1879	——
Brooks, Z. T., Greensboro Jeff. Med. Coll., 1884.	Took oath.	
Boyles, J. H., Greensboro P. & S., Balto., 1903.	1903	——
Burrus, J. T., High Point Grant Univ., 1898.	1898	——
Bowman, H. P., Greensboro Univ. of Tenn., 1894.	1894	——
Burleyson, L. N., Greensboro Univ. of Md., 1891.	1891	——

Members and Address.	*Licensed.*	*Joined State Society.*
Banner, C. W., Greensboro Univ. of Md., 1899.	1899	——
Cole, W. F., Greensboro Johns Hopkins Univ., 1909.	1909	——
Coble, W. A., Greensboro, R. F. D. Jeff. Med. Coll.	Took oath.	
Dees, R. O., Greensboro Univ. of Md., 1906.	1906	——
Dees, R. E., Greensboro Univ. of Md., 1906.	1906	——
Dick, J. V., Gibsonville Univ. of N. C., 1907.	1907	——
Dodson, H. H., Greensboro Med. Coll. of Va., 1882.	1885	——
Duncan, G. F., High Point Balto. Univ., 1898.	1898	——
Fortune, A. F., Greensboro Univ. Coll. of Med., Va., 1900.	1900	——
Fox, M. F., Guilford College P. & S., Balto., 1884.	1884	——
Grayson, C. S., High Point Geo. Wash. Univ., 1907.	1907	——
Gordon, J. R., Jamestown Univ. of N. Y., 1891.	1891	——
Gove, A. M., Greensboro Woman's Med., N. Y., 1891.	1894	——
Harrison, E., Greensboro Univ. Coll. of Med., 1896.	1900	——
Hilton, J. J., Greensboro Univ. of Md., 1886.	1889	——
Holt, W. T., Greensboro, R. F. D. Univ. of Tenn., 1890.	1894	——
Jones, W. M., High Point Univ. of Md., 1903.	1903	——
Jordan, G. E., Gibsonville P. & S., Balto., 1891.	1891	——
Knight, W. P., Greensboro, R. F. D. Balto. Med. Coll., 1898.	1898	——
Little, T. R., Greensboro Univ. of Pa., 1900.	1903	——
Logan, J. E., Greensboro Jeff. Med., ——	Took oath.	
Long, J. W., Greensboro Vanderbilt, 1883.	1883	——
McAnally, W. J., High Point Balto. Med. Coll., 1897.	1896	——
Meadows, W. J., Greensboro Ala. Med. Coll., 1894.	1898	——
Michaux, E. R., Greensboro Univ. of N. Y., 1889.	1889	——
Miles, M. S., Greensboro Woman's Med., Cinn., O., 1898.	1904	——
Moseley, C. W., Greensboro Balto. Med. Coll., 1893.	1893	——

Members and Address.	*Licensed.*	*Joined State Society.*
Moore, C. E., Greensboro Jeff. Med. Coll., 1907.	1909	——
Norman, G. W., Pomona Balto. Med. Coll., 1896.	1896	——
Paddison, J. R., Oak Ridge Univ. of Md., 1902.	1902	——
Reaves, W. P., Greensboro Univ. of South, 1903.	1905	——
Richardson, W. G., Greensboro Jeff. Med. Coll., 1869.	1889	1904
Reives, J. T., Greensboro Louis. Med., 1891.	1892	——
Reitzel, C. E., High Point P. & S., Ga., 1902.	1902	——
Reitzel, J. R., High Point Univ. of Tenn., 1892.	1895	——
Roberson, C., Greensboro L. I. Coll. Hosp., 1897.	1897	——
Ross, G. F., Greensboro Univ. of Pa., 1907.	1908	——
Stanton, D. A., High Point Vanderbilt, 1887.	1887	——
Spoon, O. A., Greensboro, R. F. D. N. C. Med. Coll., 1908.	1908	——
Tankersley, J. W., Greensboro Jeff. Med., 1906.	1906	——
Turner, J. A., High Point Louis. Med., 1886.	1889	——
Turner, J. P., Greensboro Univ. of Md., 1896.	1897	——
Williams, J. R., Greensboro Univ. of Mich., 1903.	1904	——
Williams, J. A., Greensboro Univ. of Va., 1898.	1898	——
Williams, B. B., Greensboro Univ. of Md., 1883.	1886	——
Wilson, A. R., Greensboro Jeff. Med., 1882.	1882	——
Whittaker, A. C., Julian Univ. of Tenn., 1903.	1903	——

HARNETT COUNTY SOCIETY.

President, J. W. Halford, Chalybeate Springs Columbia Univ., Wash. D. C., 1906.	1906	1906
Secretary, I. F. Hicks, Dunn N. C. Med. Coll., 1902.	1902	1904
Holt, W. P., Duke Jeff. Med. Coll., 1895.	1895	1901
Hudson, W. L., Dunn Ky. School Med., 1876.	1883	1894
Highsmith, Chas., Dunn Balto. Med., 1898.	1898	1898

Members and Address.	*Licensed.*	*Joined State Society.*
Smith, F., Linden	——	——
Moore, F. T., Benson	——	1904
McKay, J. F., Buie's Creek S. C. Med. Coll., 1884.	1885	1904
Lee, S. P. J., Dunn Md. Med. Coll., 1904.	1904	1905
Utley, H. H., Benson Balto. Med., 1906.	1906	1906
Sexton, C. H., Dunn Univ. of Md., 1890.	1890	1904
McLean, J. W., Godwin N. C. Med., 1902.	1902	1902
Melvin, W. C., Linden Univ. Coll. Med., Va., 1900.	1900	1905
Arnold, L. J., Lillington N. C. Med. Coll., 1905.	1905	1906

HAYWOOD COUNTY SOCIETY.

President, R. L. Allen, Waynesville Univ. Md., 1885.	1885	1899
Secretary, J. Howell Way, Waynesville Vanderbilt Univ., 1886.	1885	1887
Able, J. F., Waynesville Univ. Balto., 1892.	1893	1899
Davis, F. M., Clyde Vanderbilt Univ., 1894.	1894	1904
McCracken, J. R., Waynesville N. C. Med., 1902.	1902	1903
Mease, J. H., Canton Vanderbilt Univ., 1893.	1893	1894
Greenwood, B. H., Waynesville Balto. Med., 1893.	1894	1906
Graham, W. A., Crab Tree, R. F. D. Vanderbilt Univ., 1 Co. Registered on oath, 1906.	——	1906
Caraway, Jas. F., Canton Med. Coll. S. C., 1900.	1905	1906
Reynolds, Thomas F. N. C. Med. Coll., 1904.	1904	1904
Stringfield, Thomas, Waynesville Vanderbilt Univ., 1898.	1898	1899
Stringfield, S. L., Waynesville Jeff. Med. Coll., 1905.	1905	1906
Willis, A. P., Canton Univ. N. C., 1905.	1905	1906
Wilson, J. E., Sonoma 1 Co. Louisv. Med. Coll., 1876.	——	1903
Hyatt, Fred C., Waynesville Jeff. Med. Coll., 1907.	1907	1907
Moore, J. E., Canton Tenn. Med., 1899.	1898	1899
McFayden, H. L., Waynesville Univ. N. Y., 1876.	——	1904

Members and Address.	*Licensed.*	*Joined State Society.*

HENDERSON-POLK COUNTY SOCIETY.

President, Wm. R. Kirk, Hendersonville Central Univ. of Ky., 1898.	1901	1903
Secretary, Guy E. Dixon, Hendersonville St. Louis Coll. P. & S., 1903.	1903	1903
Allen, T. A., Hendersonville S. C. Med. Coll.	——	1904
Howe, W. B. W., Hendersonville S. C. Med. Coll., 1906.	1907	1908
Brown, J. S., Hendersonville North Western Univ., 1893.	1894	1894
Egerton, J. L., Hendersonville Univ. Md., 1877.	——	1890
Drafts, A. B., Hendersonville Univ. Va., 1896.	1899	1903
Waldrop, J. G., Hendersonville P. & S., Balto., 1876.	——	1891
Williams, J. Roy, Hendersonville, trans. from Guilf'd Univ. Mich., 1903.	1904	1904
Crawford, J. F., Hendersonville, trans. from Meck'bg N. C. Med. Coll., 1909.	1909	1910
Morse, L. B., Hendersonville, trans. from Rutherford Chicago Homeopathic Coll., 1899.	1901	1908
Summer, T. W., Fletcher's Jeff. Med. Coll., 1910.	1910	1911
Greenwood, S. E., Fletcher's, R. F. D. Tenn. Med. Coll., 1902.	1903	1904
Hooper, J. Orville, Saluda Univ. Nashville, 1908.	1908	1909
Salley, E. M., Saluda Univ. Md., 1905.	1905	1906
Grady, Earl, Tryon Univ. of Md., 1894.	1895	1899
Guerard, A. R., Flat Rock Bellevue Med. Coll., 1895.	1902	1905

HYDE COUNTY SOCIETY.

President, A. G. Harris, Fairfield Univ. S. C., 1905.	1907	1908
Secretary, W. L. Swindell, Scranton Balto. Med. Coll., 1908.	1908	1908
Mann, J. A., Fairfield Univ. N. Y., 1872.	——	——
Windley, R. E., Swan Quarter Univ. Md., 1903.	1904	1907
Mann, J. E., Lake Landing Univ. Md., 1907.	1908	1908
Jones, E. H., Swan Quarter Washington Univ., 1872.	——	——

Members and Address.	*Licensed.*	*Joined State Society.*
IREDELL-ALEXANDER COUNTY SOCIETY.		
President, M. R. Adams, Statesville	1904	1910
Univ. Md., 1904.		
Secretary, J. E. McLaughlin, Statesville	1886	1886
Univ. Md., 1886.		
East, C. W., Statesville	1904	1910
N. W. Univ., 1904.		
Long, H. I., Statesville	——	——
Anderson, Thos. E., Statesville	——	——
Gilmore, W. D., Mooresville	——	——
Carpenter, F. A., Mooresville	——	——
Klutz, E. F., Troutman	——	——
Bell, A. E., Mooresville	——	——
JOHNSTON COUNTY SOCIETY.		
President, Thel Hooks, Smithfield	1910	1903
Med. Coll. Va., 1901.		
Secretary, Robert P. Noble, Selma	1907	1908
Univ. N. C., 1907.		
Coleman, G. S., Kenly	1907	1908
Med. Coll. Va., 1907.		
Eason, Oscar, Selma, R. F. D. No. 1	1910	1910
Univ. N. C., 1910.		
Grady, J. C., Kenly	——	1904
P. & S., Balto., 1886.		
Griffin, J. A., Clayton	——	1905
P. & S., Balto.		
Hocutt, B. A., Clayton	1906	1907
Univ. N. C., 1906.		
Muns, L. A., Smithfield	1888	1904
P. & S., Balto., 1888.		
Mayerburg, Q. W., Pine Level	1907	1908
Jeff., 1907.		
McLemore, G. A., Polenta	1906	1907
Univ. N. C., 1906.		
Noble, R. J., Selma	1878	1878
Ky. Med. Sch., 1875.		
Person, J. B., Selma	1897	1900
Med. Coll., Va., 1897.		
Parker, G. E., Benson	——	1904
P. & S., Balto., 1885.		
Rose, A. H., Smithfield	1906	1906
Jefferson, 1906.		
Stanley, J. H., Four Oaks	1904	1906
Univ. N. C., 1904.		
Nick, George D., Selma	1906	1906
Jefferson, 1906.		
Woodard, A. G., Princeton	1907	1909
Univ. N. C., 1907.		
Wharton, L. D., Smithfield	1893	1894
Tulane, 1893.		
Young, J. J., Smithfield	1896	1904
P. & S., Balto., 1896.		

Members and Address.	*Licensed.*	*Joined State Society.*
LENOIR COUNTY SOCIETY.		
President, R. W. Wooten, Kinston	——	1904
Univ. Va., 1870.		
Secretary, Albert D. Parrott, Kinston	1906	1906
Univ. Coll. Med., 1906.		
Parrott, James M., Kinston	1895	1896
Tulane, 1895.		
Hargrove, W. F., Kinston	1901	1901
Univ. Md., 1901.		
Tull, Henry, Hon., Kinston	——	——
Whitaker, F. A., Kinston	——	——
Denny, W. W., Hon., Kinston	——	——
LINCOLN COUNTY SOCIETY.		
President, W. C. Kiser, Reepsville	——	——
Secretary, Jno. B. Wright, Lincolnton	1899	1899
Univ. Coll. Med., Va.		
Killian, R. B., Lincolnton, R. F. D.	1885	1904
Louisv. Med. Coll., 1885.		
Hoover, C. H., Crouse	1903	1904
Balto. Med. Coll., 1903.		
Abernathy, H. W., Denver	1894	1898
Louisv. Med. Coll., 1894.		
Taylor, B. C., Stanley, R. F. D.	——	——
Costner, G. H., Lincolnton	1902	1907
Univ. Md., 1901.		
Crowell, L. A., Lincolnton	1892	1898
Balto. Med. Coll., 1892.		
Thompson, C. D., Lincolnton	1901	1094
Med. Dept. U. Tenn., 1901.		
Saine, Jno. W., Lincolnton	1891	1904
Louisv. Med. Coll., 1891.		
MARTIN COUNTY SOCIETY.		
President, H. B. York, Williamston	1906	1906
P. & S., Balto., 1906.		
Secretary, Wm. E. Warren, Williamston	1893	1894
Nongrad., Univ. N. Y.		
Fleming, M. I., Hamilton	1906	1906
Jeff. Med., Phila., 1906.		
Long, B. L., Hamilton	——	1904
Univ. Md., 1880.		
Long, E. M., Hamilton	——	——
Knight, J. B. H., Williamston	1885	1891
P. & S., Balto., 1885.		
Saunders, J. H., Williamston	1905	1906
Univ. Coll. Med., Rich., 1905.		
Rhodes, J. S., Williamston	1906	1906
Med. Coll., Va., 1906.		
Smithwick, J. E., Jamesville	1897	1904
Univ. Md., 1897.		
Ward, J. E., Robersonville	1904	1904
Univ. Md., 1904.		

Members and Address.	*Licensed.*	*Joined State Society.*
Nelson, R. J., Robersonville	1890	1893
Louisv. Med. Coll., 1890.		
Williams, J. W., Everetts	1906	1906
Univ. Md., 1906.		
Hargrove, R. H., Kinston	1879	1879
Univ. Md., 1877.		

MECKLENBURG COUNTY SOCIETY.

President, A. M. Whisnant, Charlotte	1893	1894
P. & S., Balto., 1893.		
Secretary, H. A. Wakefield, Charlotte	1908	1911
N. C. Med. Coll., 1908.		
Lafferty, R. H., Charlotte	1906	1906
N. C. Med. Coll., 1906.		
Hovis, L. W., Charlotte, R. F. D.	1904	1906
N. C. Med. Coll., 1904.		
Hawley, F. O., Charlotte	——	1904
Univ. Edinburg, Scotland, 1868.		
Peeler, C. N., Charlotte	1907	1907
N. C. Med. Coll., 1906.		
Nisbet, W. O., Charlotte	1886	1899
Univ. Va., 1885.		
Gibbon, R. L., Charlotte	1891	1893
Jefferson, 1892.		
Allen, William, Charlotte	1885	1885
Pharr, W. W., Charlotte	1885	1885
Jefferson, 1881.		
Myers, J. Q., Charlotte	——	——
Witherbee, W. D., Charlotte	1905	1905
McGill Univ., 1899		
Simmons, J. O., No. Charlotte	——	——
Woodley, W. T., Charlotte	——	——
Alexander, Annie, Charlotte	1885	1885
Wom. Med. Coll., Pa., 1884.		
Costner, T. F., Charlotte	——	——
Wakefield, W. H., Charlotte	1891	1893
Hosp. Coll. Med., Ky., 1890.		
Austin, F. D., Charlotte	1907	1907
N. C. Med. Coll., 1907.		
Craven, W. W., Huntersville	——	——
McLaughlin, C. S., Charlotte	1903	1903
Univ. N. C., 1896.		
Alexander, J. R., Charlotte	1894	1898
Univ. Md., 1894.		
Petrie, R. W., Charlotte	1903	1903
Univ. Md., 1903.		
Crowell, A. J., Charlotte	1892	1894
Univ. Md., 1892.		
Irwin, J. R., Charlotte	——	——
Tucker, J. H., Charlotte	1899	1899
Univ. Va., 1899.		
Walker, C. E., Charlotte	1891	1894
Univ. Md., 1891.		

Members and Address.	*Licensed.*	*Joined State Society.*
Matheson, J. P., Charlotte	——	——
Brenizer, A. G.,	——	——
Abernethy, J. S., Charlotte, R. F. D.	——	——
King, P. M., Charlotte	1904	1906
Univ. N. Y., 1904.		
Austin, J. A., Charlotte	——	——
McManaway, C. G., Charlotte	——	——
Hunter, L. W., Charlotte, R. F. D.	——	——
Nalle, B. C., Charlotte	——	——
Newell, L. B., Charlotte	——	——
Barron, A. A., Charlotte	——	——
Munroe, J. P., Charlotte	1886	1890
Univ. of Va., 1885.		
Leinbach, R. F., Charlotte	——	——
DeArmon, J. M., Charlotte	——	——
Strong, C. M., Charlotte	1898	1898
Univ. of Md., 1898.		
Clifford, J. S., Charlotte	1907	1908
G. W. Univ., 1906.		
Cauthen, R. S., Charlotte	——	——
Reid, W. K., Charlotte	1896	1896
Univ. N. Y., 1891.		
Davidson, J. E. S., Charlotte	——	——
Boyette, E. C., Charlotte	——	——
Knox, John, Pineville, R. F. D.	——	——
MacConnell, J. W., Davidson	1908	1908
Univ. Md., 1908.		
Misenheimer, C. A., Charlotte	1882	1882
Univ. N. Y., 1882.		
Henderson, S. M., Charlotte, R. F. D.	1874	1904
Univ. Md., 1894.		
Register, E. C., Charlotte	1887	1887
Univ. N. Y., 1885.		
Graham, W. A., Charlotte	1889	1890
P. & S., N. Y., 1888.		
Summers, J. W., Charlotte	——	——
Skinner, L. C., Davidson	——	——
Wooten, W. H., Davidson	——	——
Wright, T. H., Charlotte	——	——
Moore, B. S., Charlotte	——	——
Query, R. Z., Charlotte	——	——
Faison, I. W., Hon., Charlotte	——	——
Whisnant, W. E., Charlotte	——	——

MITCHELL COUNTY SOCIETY.

President, Chas. A. Paterson, Spruce Pine	1907	1908
N. C. Med. Coll., 1907.		
Secretary, Chas. G. Bryant, Spruce Pine	1902	1904
Louisv. Med. Coll., 1894.		
Buchanan, C. L., Bakesville	1910	1911
Tenn. Med. Coll., 1910.		
Erving, J. B., Booneford	1904	1906
Western Med. Coll., 1879.		

Members and Address.	*Licensed.*	*Joined State Society.*
Stock, R. E., Bakesville	1911	1911
N. C. Med. Coll., 1911.		

MONTGOMERY COUNTY SOCIETY.

President, J. B. Shamburger, Star	1890	1892
Univ. Md., 1890.		
Secretary, H. E. Bowman, Biscoe	1904	1904
N. C. Med. Coll., 1904.		
Thompson, A. F., Troy	1895	1902
M. C., Indiana, 1895.		
Sisk, J. A., Troy	1902	1909
N. C. Med. Coll., 1902.		
Daligny, C., Troy	——	1902
Mil. Med. Sch., Paris, 1878.		
Dowd, J. A., Biscoe	1907	1909
N. C. Med. Coll., 1902.		
Ingram, C. B., Mt. Gilead	1886	1902
Jeff. Med. Coll., 1886.		

McDOWELL COUNTY SOCIETY.

President, B. L. Ashworth, Marion	1893	1895
P. & S. of Balto., 1892.		
Secretary, T. M. Chaney, Old Fort	1908	1909
Univ. Md., 1906.		
McIntosh, D. M., Old Fort	1907	1908
Richmond Med. Coll., 1904.		
Kirby, Guy S., Marion	1897	1903
Univ. Coll. Med., Va., 1897.		
Jonas, J. F., Marion	1903	1903
Balto. Med. Coll., 1903.		

MOORE COUNTY SOCIETY.

President, W. C. Mudgett, Southern Pines	——	——
Secretary, J. W. Willcox, Carthage	——	——
Blair, A. McNeill, Southern Pines	1905	1905
Univ. N. Y., 1897.		
McLeod, A. H., Aberdeen	1896	1904
Balto. Med. Coll., 1896.		
McLeod, Gilbert, Carthage	1885	1904
Univ. Md., 1882.		
McMillan, J. M., Hemp	1909	1911
Atlanta Coll., 1909.		
Monroe, J. P., Sanford	1901	1903
P. & S., Balto., 1901.		
Monroe, W. A., Sanford	1886	1888
Univ. Md., 1886.		
McIver, Lynn, Sanford	1902	1903
Univ. Ky., 1901.		
Mudgett, W. C., Southern Pines	——	——
Shields, H. B., Carthage	1887	1904
Atlanta Med. Coll., 1882.		

Members and Address.	*Licensed.*	*Joined State Society.*
Street, M. E., Glendon P. & S., Balto., 1893.	1893	1902
Switt, W. P., Southern Pines Univ. Va., 1876.	——	1901
Willcox, J. W., Carthage Univ. N. C., 1906.	1906	1906

LEE COUNTY SOCIETY.

President, W. A. Monroe, Sanford Univ. Md., 1886.	1886	1888
Secretary, Lynn McIver, Sanford Univ. Ky., 1901.	1902	1902
Matthews, J. H., Vass Univ. N. C., 1907.	1907	1908
Matthews, M. L., Cameron Univ. N. C., 1903.	1903	1904
Monroe, J. P., Sanford P. & S., Balto., 1901.	1901	1901
Snipes, E. P., Jonesboro Vanderbilt Univ., 1890.	1892	1892
McIver, E. M., Jonesboro Univ. N. C., 1908.	1908	1908
Palmer, R. W., Gulf Louisville Med. Coll., 1890.	1891	1891
Rasser, R. G., Broadway, R. F. D. No. 1 N. C. Med. Coll., 1909.	1909	1911
Hoyle, H. B., Jonesboro N. C. Med. Coll., 1896.	1896	1903
Watson, Leon, Broadway N. C. Med. Coll., 1900.	1900	1904
Achorn, J. W., Boston, Mass., Trinity Court	——	——

NEW HANOVER COUNTY SOCIETY.

President, B. J. Willingham, Wilmington Med. Coll. Va., 1906.	1906	1906
Secretary, C. P. Bolles, Wilmington	——	——
Hall, Wright, Wilmington Univ. Md., 1900.	1900	1900
Wessell, John C., Wilmington Univ. Md., 1900.	1900	1900
Nesbit, C. T., Wilmington Balto. Med. Coll., 1893.	1907	1908
Harris, A. H., Wilmington Med.-Chi., Phila., 1893.	1892	1904
Russell, F. H., Wilmington Univ. Md., 1893.	1893	1893
Honnett, J. H., Wilmington P. & S., N. Y., 1900.	1901	1904
Akerman, Joseph, Wilmington Johns Hopkins, 1905.	1905	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Craumer, J. B., Wilmington Univ. N. C., 1905.	1905	1906
Murphy, J. G., Wilmington Univ. Louisville, 1903.	1903	1905
Moore, W. H., Wilmington	——	——
Harper, C. T., Wilmington Univ. Md., 1904.	1893	1904
Bellamy, W. J. H., Wilmington	——	——
Thomas, Geo. G., Wilmington	——	——
Love, W. J., Wilmington	——	——

NORTHAMPTON COUNTY SOCIETY.

President, H. W. Lewis, Jackson Univ. N. Y., 1877.	——	——
Secretary, R. P. Morehead, Lasker P. & S., Balto., 1895.	——	——
Bolton, Mahlon, Rich Square Jeff. Med. Coll., 1885.	——	——
Brittle, P. C., Conway	——	——
Cook, Q. H., Woodland	——	——
Ellis, A. J., Garysburg Univ. Penn., 1858.	——	——
Lassiter, E. W., Rich Square Univ. Coll. Med., 1908.	——	——
Lister, J. L., Jackson Med. Coll. Va., 1896.	——	——
Stancell, R. H., Margarettsville Med. Coll. Va., 1865.	——	——

ONSLOW COUNTY SOCIETY.

President, C. W. Sutton, Richlands Tulane Univ., 1905.	1905	1905
Secretary, L. D. Bryan, Snead's Ferry Tulane Univ., 1910.	1910	1910
Nicholson, J. L., Richlands Univ. Med. Coll., N. Y., 1875.	1875	1880
Cox, E. L., Jacksonville Univ. of Md., 1889.	1889	1892
Thompson, Cyrus, Jacksonville Univ. of La., 1878.	——	1904
Montfort, W. J., Swansboro Jefferson, 1857.	——	1904
Blount, F. H., Swansboro	——	1904
Hughes, G. R., Pollocksville Univ. N. Y., 1888.	1888	1894
Hyatt, H. O., Kinston Univ. of Pa., 1868.	1870	1870
Hyatt, A. L., Kinston Univ. of Md., 1910.	1910	1910
Page, B. W., Raleigh Tulane.	1909	1910

Members and Address.	*Licensed.*	*Joined State Society.*
PENDER COUNTY SOCIETY.		
President, R. H. Bradford, Burgaw	1904	1904
1904.		
Secretary, J. T. Hoggard, Atkinson	1906	1906
1906.		
PERSON COUNTY SOCIETY.		
President, W. A. Bradsher, Roxboro	1904	1905
Univ. Md., 1904.		
Secretary, B. E. Love, Roxboro	1904	1905
Univ. Md., 1904.		
Baynes, R. S., Roxboro, Rt. 6	1881	1904
P. & S., Balto., 1881.		
Gentry, G. W., Timberlake	1910	——
Univ. N. C., 1910.		
Long, W. T., Roxboro	1905	1907
Balto. Med., 1905.		
Merritt, J. H., Woodsdale, No. 2	1907	1908
Univ. N. C., 1906.		
Nichols, A. F., Roxboro	1908	1909
Univ. N. C., 1908.		
Nichols, C. G., Roxboro	1885	1891
Non-graduate Bellevue.		
Schaub, O. P., Roxboro	1898	1898
Balto. Med., 1898.		
Swann, J. F., Semora	1898	1904
P. & S., Balto., 1898.		
PASQUOTANK, CAMDEN & DARE COUNTY SOCIETY.		
President, Zenas Fearing, Elizabeth City	1901	1904
Univ. Med. Coll.		
Secretary, H. D. Walker, Elizabeth City	1902	1902
Univ. Maryland, 1902.		
Williams, C. B., Elizabeth City	1903	1906
Univ. Coll. Med., 1903.		
Fearing, I., Elizabeth City	1896	1896
P. & S., Balto., 1896.		
Aydlett, H. T., Elizabeth City	1895	1896
Univ. Va., 1894.		
Lumsden, W. J., Elizabeth City	——	1888
Univ. Maryland, 1869.		
McMillan, O., Elizabeth City	——	1889
Univ. Va., 1880.		
Sawyer, C. W., Elizabeth City	——	1904
Univ. Md., 1886.		
Sawyer, W. W., Shiloh	1903	1905
Univ. Md., 1903.		
Sutton, C. A., Buxton	——	——
Cohn, B. W., South Mills	1905	1908
Med. Coll. Va., 1884.		
Hoggard, W. A., Woodville	——	——

Members and Address.	*Licensed.*	*Joined State Society.*
PITT COUNTY SOCIETY.		
Secretary, Louis C. Skinner, Greenville	1901	1902
Univ. Maryland, 1901.		
Zeno Brown, Greenville	1885	1885
Bellevue, 1883.		
Laughinghouse, C. O. H., Greenville	1893	1894
Univ. Pa., 1893.		
Cox, B. T., Winterville	1888	1888
Frizzelle, M. T., Ayden	1907	1907
Univ. Md., 1888.		
Dawson, W. W., Grifton	1897	1900
Univ. Md., 1897.		
Whitfield, Wm. Cobb, Grifton, R. F. D.	1884	1884
Univ. Md., 1884.		
Patrick, J. E., Farmville	1900	1900
Univ. Coll. Med., 1900.		
Morrill, D. S., Farmville	1897	1904
Balto. Med. Coll., 1897.		
Baswright, T. G., Stokes	1905	1906
Univ. Med., 1904.		
RANDOLPH COUNTY SOCIETY.		
President, F. E. Asbury, Asbury	1885	1896
S. C. Med. Coll., 1876.		
Secretary, W. J. Moore, Asheboro	1893	1901
P. & S., Balto., 1893.		
Hubbard, C. C., Farmer	1890	1904
Jeff. Med. Coll., 1888.		
Hunter, J. V., Asheboro	1898	1904
Univ. Louisville, 1898.		
Myers, R. W., Fullers, R. F. D.	——	1909
Grant Univ., 1897.		
Hiatt, H. B., Asheboro	1907	1907
Univ. Maryland, 1907.		
Phillips, C. H., Fullers	1893	——
Balto. Univ., 1892.		
ROBERSON COUNTY SOCIETY.		
President, J. D. Croom, Maxton	——	1887
Med. Coll. S. C., 1876.		
Secretary, John Knox, Jr., Lumberton	1907	1907
Univ. Md., 1906.		
Brown, J. P., Fairmont	——	1904
Univ. Md., 1883.		
Croom, A. B., Maxton	1905	1906
Univ. Md., 1905.		
Hodgin, H. H., Red Springs	1906	1906
N. C. Med. Coll.		
Kirkpatrick, L. R., Maxton	1902	1902
N. C. Med. Coll.		
McPhail, W. A., Lumberton	1905	1906
Univ. Nash.		

Members and Address.	*Licensed.*	*Joined State Society.*
Northrop, T. L., St. Paul's	1897	1903
Univ. Md.		
Reedy, Howard, Rowland	——	1904
Med. Coll. S. C.		
Stamps, Thomas, Lumber Bridge	1888	1888
Univ. Louisville.		
Thompson, N. A., Lumberton	1895	1904
Md. Med. Coll.		
McMillan, B. F., Red Springs	——	——
McMillan, J. L., Red Springs	——	——
Gibson, M. R., Maxton	——	——
Evans, Wm., Rowland	——	——
Pate, J. F., Pembrooke	——	——
Grantham, W. L., Lumberton	——	——
Harris, D. W., Maxton	——	——
Norment, F. A., Lumberton	——	——
Pope, H. T., Lumberton	——	——
Surles, ——, Lumber Bridge	——	——
Currie, D. S., Packton	——	——

ROCKINGHAM COUNTY SOCIETY.

President, T. G. Taylor, Leaksville	——	——
Secretary, J. W. McGehee, Reedsville	1904	1905
Univ. of Md., 1904.		
Martin, S. L., Leaksville	——	——
Sweeney, John, Spray	——	1904
P. & S., Balto., 1886.		
Ray, John, Leaksville	1890	1904
Balto. Med. Coll., 1890.		
Webb, S. E., Draper	——	——
Jett, S. G., Reidsville	——	——
Whorton, A. R., Ruffin	1897	——
Med. Coll. Va., 1897.		
Taylor, J. L., Madison	1906	1910
Univ. of Md., 1906.		
Ellington, S. B., Wentworth	——	——
Jefferson, 1877.		
Baird, C. A., Madison	1904	1904
N. C. Med. Coll., 1904.		
Matherson, R. C., Madison	——	——
P. & S., Balto.		
Johnson, W. A., Reidsville, R. F. D. 2	1910	1910
N. C. Med. Coll.		
McBride, H. H., Reidsville	——	——
Tuttle, A. F., Spray	——	——

ROWAN COUNTY SOCIETY.

President, M. L. Smott, Salisbury	1903	1904
Univ. Coll. Med., Va., 1903.		
Secretary, R. V. Brawley, Salisbury	1901	1904
Univ. Coll. Med., Va., 1901.		

Members and Address.	*Licensed.*	*Joined State Society.*
Brown, Geo. A., Mt. Ulla Univ. Coll. Med., Va., 1897.	1897	——
Busby, J. G., Spencer Univ. Md., 1904.	1904	——
Caldwell, J. A., Salisbury Johns Hopkins, 1904.	1905	1905
Choate, G. W., Rockwell N. C. Med., 1909.	1909	1909
Council, J. B., Salisbury Coll. Phys. & Sur., 1884.	1885	——
Crump, W. L., Salisbury Jeff. Med., 1879.	1881	1904
Currie, E. W., Salisbury N. C. Med., 1907.	1907	1907
Edwards, B. O., Landis N. C. Med., 1905.	1905	1905
Heilig, H. G., Salisbury Univ. Md., 1899.	1899	1904
Lentz, C. M., Gold Hill N. C. Med., 1909.	1909	——
McKenzie, W. W., Salisbury Jeff. Med., 1893.	1893	1894
Monk, H. L., Spencer Med. Coll. of Va., 1897.	1899	1903
Monk, G. M., Spencer Univ. N. C., 1908.	1908	1908
Peeler, J. H., Granite Quarry Univ. Coll. Med., Va., 1899.	1899	1904
Ramsauer, G. A., China Grove Jeff. Med., 1880.	1886	1898
Sigmon, F. G., Spencer Univ. Coll. Med., Va., 1909.	1909	1909
Poole, C. M., Craven P. & S., Balto., 1880.	1880	1880
Spencer, F. B., Salisbury Univ. N. C., 1909.	1909	1910
Stokes, J. E., Salisbury Univ. Md., 1892.	1900	1901
Summerrell, E. M., Mill Bridge Univ. Penn., 1883.	1883	1883
Trantham, H. T., Salisbury Univ. N. Y., 1875.	1878	1879
West, R. M., Salisbury Med. Coll. Va., 1900.	1900	1904
Whitehead, John, Salisbury Univ. Penn., 1880.	1880	1880
Woodson, C. W., Salisbury P. & S., N. Y., 1904.	1905	1907
HONORARY MEMBERS.		
Poole, C. M.	——	——
Trantham, H. T.	——	——
Whitehead, John	——	——

Members and Address.	*Licensed.*	*Joined State Society.*

RUTHERFORD COUNTY SOCIETY.

President, Geo. P. Reid, Forest City Univ. Coll. Med., Va., 1895.	1895	1899
Secretary, W. C. Bostic, Forest City N. C. Med. Coll., 1905.	1905	1906
Biggs, M. H., Rutherfordton Univ. Pa., 1897.	1907	1908
Chapman, G. M., Bostic, R. F. D. Grant Univ., 1897.	1904	1905
Harrell, L. B., Caroleen Grant Univ., 1897.	1902	1903
Haynes, B. M., Cliffside N. C. Med. Coll., 1905.	1905	1906
Hicks, Romeo, Henrietta So. Med. Coll. Ga., 1888.	——	1899
Hobgood, J. E., Caroleen Jeff. Med. Coll., 1907.	1908	1909
Lancaster, B. B., Fingerville, S. C., R. F. D. So. Med. Coll. Ga., 1889.	——	1909
Lovelace, T. B., Henrietta P. & S., Balto., 1883.	1885	1904
Anders, R. M., Bostic, R. F. D. Memp. Hospt. Med. Coll., 1900.	1904	1905
Smart, J. B., Forest City Grant Univ., 1900.	1907	1911
Allhands, J. M., Cliffside Coll. of Med. & Surg., Chicago, 1910.	1910	1911
Norris, Henry, Rutherfordton Univ. Pa., 1896.	1907	1908
Norris, Philip, Rutherfordton Univ. Pa., 1903.	1908	1909
Harris, E. B., Rutherfordton P. & S., Balto., 1884.	——	1904
Rucker, A. A., Rutherfordton Univ. Md., 1908.	1908	1909
Russell, C. R., Forest City Univ. Sch. Med., Va., 1909.	1909	1910
Thompson, J. B., Bostic, R. F. D. P. & S., Balto., 1899.	1898	1904
Twitty, J. C., Rutherfordton Balto. Med. Coll., 1892.	1892	1906
Wiseman, C. B., Henrietta P. & S., Balto., 1902.	1902	1904
Young, G. E., Forest City Non-graduate Univ. Pa., 1869.	1885	1904
Edwards, A. A., Rutherfordton Grant Univ., 1900.	1907	1908
Gold, Chas., Ellenboro Univ. N. C., 1910.	1910	1911
Thompson, W. A., Rutherfordton P. & S., Balto., 1885.	——	1904

Members and Address.	*Licensed.*	*Joined State Society.*
SAMPSON COUNTY SOCIETY.		
President, F. H. Holmes, Clinton Univ. Md., 1895.	1895	1896
Secretary, G. M. Cooper, Clinton Univ. Coll. Med., Va., 1905.	1905	1906
Crumpler, Paul, Roseboro Univ. Tenn., 1907.	1907	1908
Matthews, J. O., Clinton, R. F. D. Univ. Coll. Med., Va., 1897.	1897	1902
Sloan, Henry, Ingold S. C. Med. Coll., 1881.	1885	1902
Sikes, G. L., Salemburg Univ. Coll. Med., Va., 1900.	1900	1904
Stevens, J. A., Clinton Jeff. Med. Coll., 1883.	1883	1883
Kerr, J. D., Jr., Clinton Univ. Md., 1869.	——	1904
McLean, R. H., Dunn, R-6 P. & S., Balto., 1882.	——	1907
Underwood, O. E., Earnest	——	——
Wilson, R. B., Newton Grove Ky. Sch. Med., 1889.	1890	1904
SCOTLAND COUNTY SOCIETY.		
President, W. D. Shaw, Nagram P. & S., Balto., 1892.	1895	1904
Secretary, Peter McLean, Laurinburg Univ. of Md., 1906.	1907	1908
John. Peter, Laurinburg Univ. of Md., 1897.	1897	1904
Everington, G. D., Laurinburg N. C. Med. Coll., 1899.	1898	1898
James, W. D., Laurinburg Jeff. Med. Coll., 1908.	1908	1908
McLean, Allan, Nagram Univ. of Md., 1908.	1908	1908
Pate, W. T., Gibson P. & S., Balto., 1885.	1885	1885
Gibson, John S., Gibson Univ. of Md., 1907.	1907	1907
HONORARY MEMBER.		
Prince, D. M., Laurinburg S. C. Med. Coll., 1875.	1875	1885
STANLY COUNTY SOCIETY.		
President, B. F. Cox, Palmerville Coll. P. & S., Balto.	1886	1888
Secretary, L. V. Dunlap, Albemarle Univ. N. C.	1909	——
Allen, J. A., New London Univ. Coll. Med.	1901	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Anderson, J. N., Albemarle Univ. N. C.	1895	1904
Campbell, J. I., Norwood Under-graduate N. C. Med. Coll.	1898	1904
Hall, J. C., Albemarle Richmond Med. Coll.	1899	1904
Hathcock, T. A., Norwood Univ. Md.	1893	1904
Hartsell, J. E., Big Lick Balto. Med. Coll.	——	——
Hill, W. J., Albemarle	1897	1904
Faton, J. F., Albemarle N. C. Med. Coll.	1904	1908
Whitley, D. P., Millingport Univ. Md.	1890	1898

SURRY COUNTY SOCIETY.

President, J. B. Smith, Pilot Mountain	——	——
Secretary, E. M. Hollingsworth, Mt. Airy	——	——
Allred, E. W., Mt. Airy	——	——
Ashby, T. B., Mt. Airy	——	——
Flippin, J. M., Mt. Airy	——	——
Hollingsworth, R. E., Mt. Airy	——	——
Mebane, W. C., Mt. Airy	——	——
Taylor, W. S., Mt. Airy	——	——
Flippin, R. E. L., Pilot Mountain	——	——
Flippin, S. T., Siloam	——	——
Ring, J. W., Elkin	——	——
Reece, J. M., Elkin	——	——
Stone, W. M., Dobson	——	——

TRANSYLVANIA COUNTY SOCIETY.

President, E. A. Lyday, Penrose	——	——
Secretary, E. S. English, Brevard	——	——
King, M. M., Brevard	——	——
Hunt, C. W., Brevard	——	——
Wallis, W. J., Brevard	——	——

UNION COUNTY SOCIETY.

President, D. R. Perkins, Marshville Btlo. Med. Coll., 1903.	1906	1906
Secretary, H. D. Stewart, Monroe Univ. of Md., 1898.	1898	1898
Armfield, R., Marshville Med. Coll. of Va., 1881.	——	1904
Ashcraft, J. E., Monroe Univ. of N. Y., 1887.	1887	1888
Blair, John M., Monroe Louisville Med Coll., 1887.	——	1898
Blair, M. P., Monroe Med. Coll. of Va., 1895.	——	1904
Eubanks, J. B., Monroe, R. F. D. No. 1 Vanderbilt Univ., 1887.	——	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Ezzell, S. H., Waxhaw	1906	——
Atlanta P. & S. Coll., 1900.		
Guin, L. E., Waxhaw	1907	1909
N. C. Med. Coll., 1907.		
Jerome, J. R., Wingate	——	1904
Univ. Md., 1890.		
McCain, W. R., Waxhaw	1898	1906
Univ. Md., 1897		
Nance, G. B., Monroe	1885	1904
Jeff. Med. Coll., 1885.		
Neal, J. W., Monroe	1887	1904
Univ. N. Y., 1884.		
Stevens, S. A., Monroe	1898	1904
Univ. Md., 1900.		
Whitley, A. D. N., Unionville	1897	1904
Univ. Md., Non-graduate.		

VANCE COUNTY SOCIETY.

President, E. F. Fenner, Henderson	1906	1907
Univ. Med., 1905.		
Secretary, F. R. Harris, Henderson	1882	1883
Univ. Va., 1881.		
McAllister, Wm., Middleburg	1890	1904
Coll. P. & S., Balto., 1890.		
Gill, R. J., Henderson	1868	1883
Univ. Pa., 1867.		
Pendleton, A. S., Henderson	1895	1898
Univ. Pa., 1895.		
Allen, B. G., Henderson	1904	1908
Columbia Univ., N. Y., 1904.		
Upchurch, R. T., Henderson	1908	1909
Jeff. Med. Coll., 1908.		
Perkins, F. E.	——	——
Chapin, W. B., Townsville	1909	1909
Univ. N. C., 1909.		
Bass, H. H., Henderson	1899	1899
Univ. Coll. Med., Va., 1899.		

WAKE COUNTY SOCIETY.

President, A. J. Penny, Vanteen	——	1904
Univ. N. Y., 1861.		
Secretary, W. C. Horton, Raleigh	——	——
Bellevue, 1882.		
Treasurer, K. B. Battle, Raleigh	1882	1882
Univ. Va., 1881.		
Hester, J. R., Knightdale	——	——
Abernethy, C. O., Raleigh	1906	1906
Univ. N. C., 1906.		
Anderson, Albert, Raleigh	1888	1889
Univ. Va., 1888.		
Blalock, N. M., Gulley's Mills	1890	1904
P. & S., Balto., 1890.		

Members and Address.	*Licensed.*	*Joined State Society.*
Buffalo, J. S., Garner	1900	1904
Balto. Med. Coll., 1900.		
Burt, B. W., Eno	1886	1904
Goodwin, A. M., Raleigh	——	——
P. & S., Balto., 1886.		
Judd, J. M., Cardenas	1891	1907
Balto. Med. Coll., 1897.		
Knox, A. W., Raleigh	1878	1880
Bellevue Med. Coll., 1874.		
McCullers, J. J. L., McCullers	1886	1904
P. & S., Balto., 1886.		
Harper, J. W., Holly Springs	——	——
Strickland, J. A., Zebulon	——	——
Stewart, E. E., Wake Forest	——	——
Moore, J. L., Wendell	——	——
Riddick, J. G., Raleigh	——	——
Faching, L. E., Raleigh	——	——
Riggsbee, A. E., Cary	——	——
McGee, J. W., Jr., Raleigh	1860	1865
Univ. Pa., 1860.		
McKee, James, Raleigh	1869	1870
Bellevue Med. Coll., 1869.		
McKee, John, Raleigh	1908	1908
Rankin, W. S., Raleigh	1901	1901
Univ. Md., 1901.		
Ray, O. L., Raleigh, R. F. D. No. 6	1899	1904
Univ. Med. Coll., 1899.		
Rogers, Jas. R,. Raleigh	——	——
Royster, H. A., Raleigh	1894	1895
Univ. Pa., 1894.		
Sorrell, L. P., Flint	——	1904
Med. Coll. Va., 1875.		
Templeton, J. M., Cary	1882	1904
Balto. Med. Coll., 1882.		
Tucker, H. McK., Raleigh	——	——
Watson, John B., Raleigh	——	——
Whitaker, Joel D., Raleigh	1905	1907
Univ. Md., 1900.		
Young, L. B., Rolesville	1886	1907
P. & S., Balto., 1886.		
Lewis, R. H., Raleigh	——	——
Royster, W. I., Raleigh	——	——
Bell, G. M., Wake Forest	——	——
Stephens, Ralph S., Raleigh	——	——
Wilkerson, Chas. B., Apex	——	——
Shore, C. A., Raleigh	——	——
Ferrill, John A., Raleigh	——	——

WARREN COUNTY SOCIETY.

President, P. J. Macon, Warrenton	1883	1901
Univ. Md., 1883.		
Secretary, C. H. Peete, Warrenton	1906	1906
Univ. Va., 1906.		

Members and Address.	*Licensed.*	*Joined State Society.*
Macon, G. H., Warrenton	——	——
Holt, T. J., Wise	1904	1904
Med. Coll., Va., 1904.		

WASHINGTON-TYRRELL COUNTY SOCIETY.

President, W. H. Hardison, Creswell	1871	——
Washington Univ., Balto., Md., 1870.		
Secretary, W. H. Ward, Plymouth	1886	1888
Univ. Md., 1881.		
Halsey, Benj. F., Roper	1894	1894
Vanderbilt Univ., 1893.		
Hassell, J. L., Creswell	1886	1907
P. & S., Balto., 1886.		
Marriner, N. B., Belhaven	——	——
Univ. Coll. Med., Richmond, Va.		
Speight, Jno. W., Roper	——	——
Gilmer, B. H., Plymouth	——	——
Univ. Coll. Med., Richmond, Va.		
Disosway, A. W., Plymouth	1905	1908
Univ. Md., 1905.		
Flowers, C. A., Columbia	1907	1907
P. & S., Balto., 1907.		
Spruill, J. L., Columbia	1895	1908
Univ. Md., 1895.		

WILSON COUNTY SOCIETY.

President, K. C. Moore, Wilson	1909	1909
Univ. Mich., 1909.		
Secretary, E. T. Dickinson, Wilson	1895	1896
Med. Coll. Va.		
Best, H. B., Wilson	1908	1908
Univ. N. C., 1908.		
Lamm, I. W., Lucama	1900	1900
Univ. Coll. Med., 1899.		
Smith, Wm. H., Bailey	——	1906
Univ. Pa., ——		
Eagles, C. S., Saratoga	——	——
Crocker, S. H., Stantonsburg	1899	1899
Morris, G. B., Middlesex	——	——
Anderson, W. S., Wilson	——	——
Washington Univ., 1867.		
Swindell, C. L., Black Creek	1909	1910
Univ. Md., 1909.		
Herring, B. S., Wilson	1901	1901
Univ. Mich., 1901.		
Moore, C. E., Wilson	1875	1875
Bellevue Coll., 1875.		
Williams, A. F., Wilson	1901	1905
Univ. Md., 1901.		
Anderson, W. H., Wilson	1905	1905
Univ. Va., 1902.		
Moore, E. G., Elm City	1890	1890
Univ. Md., 1883.		

Members and Address.	*Licensed.*	*Joined State Society.*
Harrison, J. S., Elm City	1905	1908
Med. Coll. Va., 1903.		
Saliba, M. M., Wilson	1910	1910
Balto. Med., 1897.		

WILKES COUNTY SOCIETY.

President, J. M. Turner, North Wilkesboro	——	1904
Secretary, Chas. H. Pugh, Wilkesboro	1910	1910
N. C. Med. Coll., 1910.		
Absher, D. C., North Wilkesboro	1909	1910
Univ Md., 1909.		
Hutchins, E. M., North Wilkesboro	1896	1904
N. C. Med. Coll.		
Duncan, J. E., North Wilkesboro	1907	1908
Univ. Coll. of Med., 1907.		
Gilreath, F. H., North Wilkesboro	1898	1898
Univ. of Nashville, 1898.		
Eller, A. J., Reedy Branch	1895	1904
P. & S., Balto., 1893.		
Somers, L. P., Osborneville	——	1904
Pegram, R. W. S., Dellaplane	——	——
White, J. W., Wilkesboro	1889	1890
Jeff. Med. Coll., 1889.		
Horton, W. P., Wilkesboro	——	——

YADKIN COUNTY SOCIETY.

President, C. M. Holcomb, Boonville	——	——
P. & S., Balto., 1869.		
Secretary, J. R. Finney, Boonville	——	——
Shore, T. W., Boonville	1899	1904
Univ. Richmond, 1898.		
Harding, T. R., Yadkinville	1885	1906
P. & S., Balto., 1885.		
Russell, S. L., Yadkinville	1889	1904
Univ. Tenn., 1892.		
Royall, M. A., Yadkinville	——	——
Chingman, J. J., Huntsville	——	——

COUNTY AND DELEGATE TO 58th ANNUAL SESSION, CHARLOTTE.

County.	*Delegate.*
Alamance	T. S. Faucett.
Anson	T. F. Meisenheimer.
Alleghany	B. O. Shoat.
Ashe	A. L. Jones.
Beaufort	Ira M. Hardy.
Bladen	L. B. Evans.
Brunswick	J. A. Dosher.
Burke	Isaac M. Taylor.
———	S. W. Battle.
Buncombe	C. V. Reynolds.
———	M. H. Fletcher.
Chowan	H. M. S. Cason.
Craven	R. N. Duffy.
Carteret	K. P. B. Bonner.
Columbus	J. F. Blake.
Cumberland-Hoke	Seavy Highsmith.
Cabarrus	D. G. Caldwell.
Cleveland	Oats ———
Cherokee	N. B. Adams.
Durham	N. P. Boddie.
Davidson	C. A. Julian.
Davie	J. J. F. Martin.
Edgecombe	J. M. Baker.
Franklin	R. F. Yarborough.
Forsyth	I. M. Davis.
Gaston	D. A. Garrison.
Hyde	J. A. Mann.
Hertford	A. W. Green.
Halifax	F. M. Register.
Harnett	W. P. Holt.
Iredell-Alex	T. E. Anderson.
Johnson	R. J. Noble.
Lenoir	J. M. Parrott.
Lee	J. P. Monroe.
Lincoln	G. H. Costner.
Martin	J. S. Rhodes.
Moore	A. H. McLeod.
Mecklenburg	E. C. Register.
McDowell	J. F. Jonas.
Northampton	M. Bolton.
Onslow	L. D. Bryan.
Pask., Cam. & Dr.	H. D. Walker.
Palmico	Geo. S. Atmore.
Pender	J. F. Hoggard.
Roberson	John Knox, Jr.
Rutherford	C. B. Wiseman.
Rockingham	R. C. Matherson.
Randolph	T. I. Fox.
Rowan	E. M. Sumerel.
Sampson	F. H. Holmes.
Scotland	W. D. James.
Stanley	J. N. Anderson.
Union	H. D. Stewart.
Vance	A. S. Pendleton.
Washington	W. H. Ward.
Wilson	B. S. Herring.
Wake	J. J. McCuller.
"	Albert Anderson.
Wilkes	J. M. Turner.

Alphabetical List of Members of the Medical Society with County.

Name.	*County.*
Allhands, J. M.	Rutherford
Anders, R. M.	Rutherford
Abernethy, J. S.	Mecklenburg
Austin, F. D.	Mecklenburg
Adams, N. B.	Cherokee
Adams, L. C.	Carteret
Anderson, J. A.	Gaston
Ashworth, W. C.	Guilford
Ambler, Chase P.	Buncombe
Archer, I. J.	Buncombe
Anderson, J. G.	Buncombe
Anderson, Paul V.	Burke
Archey, L. M.	Cabarrus
Aydlette, J. P.	Cleveland
Averitt, K. G.	Cumberland
Adams, C. A.	Durham
Adams, C. E.	Gaston
Anders, McT. G.	Gaston
Arnold, L. J.	Harnett
Abel, J. F.	Haywood
Allen, R. L.	Haywood
Allen, T. A.	Henderson-Polk
Adams, M. R.	Iredell-Alexander
Anderson, Thos. E.,	Iredell-Alexander
Abernathy, H. N.	Lincoln
Alexander, J. R.	Mecklenburg
Alexander, Annie L.	Mecklenburg
Austin, J. A.	Mecklenburg
Allen, Wm.	Mecklenburg
Achorn, J. Warren	Lee
Asbury, F. E.	Randolph
Aydlette, H. T.,	Pasquotank-Camden-Dare
Allen, Joseph A.	Stanly
Anderson, J. N.	Stanly
Allred, E. W.	Surry
Ashby, Thos. B.	Surry
Armfield, R.	Union
Ashcraft, J. E.	Union
Allen, B. G.	Vance
Abernethy, C. O.	Wake
Anderson, Albert	Wake
Anderson, W. H.	Wilson
Anderson, W. S.	Wilson
Absher, D. C.	Wilkes
Alford, A. E. B.	Guilford
Ashworth, B. L.	McDowell

Name.	*County.*
Blount, F. H.	Onslow
Bryan, L. O.	Onslow
Bradford, R. H.	Pender
Brown, Zeno	Pitt
Bell, G. M.	Wake
Buckner, R. G.	Buncombe
Blount, J. G.	Beaufort
Battle, S. W.	Buncombe
Briggs, H. H.	Buncombe
Brookshire, H. G.	Buncombe
Brownson, W. C.	Buncombe
Beall, L. G.	Burke
Black, J. C.	Cabarrus
Bonner, K. P. B.	Carteret
Blake, J. F.	Columbus
Bullock, T. C.	Cumberland
Brown, G. W.	Cumberland
Buchanan, E. J.	Davidson
Byerly, A. B.	Davie
Boddie, N. P.	Durham
Bowling, E. H.	Durham
Brooks, B. W.	Durham
Baker, J. M.	Edgecombe
Bass, S. P.	Edgecombe
Bahnson, H. T.	Forsyth
Bolton, M.	Northampton
Bolles, C. P.	New Hanover
Bynum, John	Forsyth
Bynum, Wade H.	Forsyth
Burt, S. P.	Franklin
Bobbitt, E. H.	Franklin
Booth, E. H.	Franklin
Booth, S. D.	Granville
Banner, C. W.	Guilford
Battle, J. T. J.	Guilford
Beall, W. P.	Guilford
Bowman, H. P.	Guilford
Boyles, J. H.	Guilford
Boone, W. H.	Durham
Brittle, P. C.	Northampton
Burt, B. W.	Wake
Blair, A. McNeil	Moore
Baird, C. A.	Rockingham
Brooks, Z. T.	Guilford
Burrus, John T.	Guilford
Brown, J. S.	Henderson-Polk
Ballard, A. M.	Buncombe
Burleyson, L. N.	Cabarrus

Name.	*County.*
Banner, M.	Craven
Barker, L. S.	Durham
Bitting, N. P.	Durham
Brenizer, A. T.	Mecklenburg
Barron, A. A.	Mecklenburg
Boyette, E. C.	Mecklenburg
Bryant, C. G.	Mitchell
Buchanan, C. F.	Mitchell
Bowman, H. E.	Montgomery
Bellamy, W. J. H.	New Hanover
Baynes, R. S.	Person
Bradsher, W. A.	Person
Basnight, T. G.	Pitt
Brown, J. P.	Robeson
Brawley, R. V.	Rowan
Brown, Geo. A.	Rowan
Busby, J. G.	Rowan
Bostic, W. C.	Rutherford
Biggs, H. M.	Rutherford
Blair, J. M.	Union
Blair, M. P.	Union
Bass, H. H.	Vance
Battle, K. P., Jr.	Wake
Baggett, L.	Columbus
Blalock, N. M.	Wake
Best, Henry	Wilson
Buffalo, J. S.	Wake
Bill, A. E.	Iredell-Alexander
Clark, Geo. L.	Bladen
Calloway, A. W.	Buncombe
Cheeseborough, Thos. P.	Buncombe
Cotton, Clyde E.	Buncombe
Carroll, R. S.	Buncombe
Cocke, Jere. E.	Buncombe
Caldwell, D. G.	Cabarrus
Carter, G. H.	Caldwell
Corpening, Oscar J.	Caldwell
Clarke, F. M.	Carteret
Champion, C. O.	Cleveland
Clemenger, F. J.	Buncombe
Clontz, W. J.	Buncombe
Clutze, E. E.	Iredell-Alexander
Coppedge, Thomas O.	Duplin
Coon, R. L.	Duplin
Crawford, J. F.	Henderson-Polk
Cook, Q. H.	Northampton
Caton, Geo. A.	Craven
Clodfelter, Chas. M.	Davidson
Carroll, J. W.	Duplin
Cheatham, Arch.	Durham
Carlton, R. L.	Forsyth
Coble, W. A.	Guilford
Coleman, T. S.	Johnston

Name.	*County.*
Caraway, J. F.	Haywood
Carter, H. W.	Beaufort
Coggerhall, G. A.	Granville
Cannady, S. H.	Granville
Carroll, J. L.	Buncombe
Costello, M. J.	Buncombe
Cauble, H. H.	Cabarrus
Crowell, M. M.	Columbus
Chaney, F. M.	McDowell
Currie, D. S.	Robeson
Currie, E. W.	Rowan
Cooper, G. M.	Sampson
Crumpler, Paul	Sampson
Choate, G. W.	Rowan
Council, J.	Rowan
Crowell, L. A.	Lincoln
Costner, G. H.	Lincoln
Crowell, A. J.	Mecklenburg
Costner, T. F.	Mecklenburg
Clifford, J. S.	Mecklenburg
Cranmer, J. B.	New Hanover
Cox, E. L.	Onslow
Cox, B. T.	Pitt
Croom, W. W.	Mecklenburg
Croom, A. B.	Robeson
Croom, J. D.	Robeson
Caldwell, J. A.	Rowan
Crump, W. L.	Rowan
Chapman, G. M.	Rutherford
Cox, B. F.	Stanly
Cox, T. A.	Perquimans
Cason, H. M. S.	Perquimans
Cohn, B. W.,	Pasquotank-Camden-Dare
Crocker, S. H.	Wilson
Cole, W. I.	Guilford
Campbell, J. I.	Stanly
Chapin, W. B.	Vance
Clingman, J. J.	Yadkin
Carpenter, J. A.	Iredell-Alexander
Davis, T. W.	Forsyth
Dosher, J. Arthur	Brunswick
Dunn, Wm. L.	Buncombe
Davis, George	Carteret
Duncan, C. L.	Carteret
Duffy, Frank	Craven
Duffy, Leinster	Craven
Dalton, D. N.	Forsyth
Dalton, W. N.	Forsyth
Davis, A. P.	Forsyth
Dees, R. E.	Guilford
Dowdy, J. E.	Forsyth
Davidson, J. E. S.	Mecklenburg
DeArmand, J. M.	Mecklenburg

Name.	*County.*
Dowd, J. A.	Montgomery
Dunlap, L. V.	Stanly
Davis, F. M.	Haywood
Davis, W. W.	Gaston
Dodson, H. H.	Guilford
Drafts, A. B.	Henderson-Polk
Dixon, Guy E.	Henderson-Polk
Daligny, Chas.	Montgomery
Davis, J. C.	Buncombe
Dawson, W. W.	Pitt
Dillard, Richhard	Perquimans
Dickinson, E. T.	Wilson
Disosway, A. W.	Washington
Duncan, J. E.	Wilkes
Duffy, R. N.	Craven
Dees, R. O.	Guilford
Dick, J. V.	Guilford
Duncan, G. F.	Guilford
Denny, W. W.	Lenoir
Evans, Wm.	Robeson
Edwards, A. A.	Rutherford
English, E. S.	Transylvania
Elias, Lewis W.	Buncombe
Eckel, O. F.	Buncombe
Eddleman, H. M.	Gaston
Edwards, G. C.	Greene
Ellis, A. J.	Northampton
East, C. W.	Iredell-Alexander
Everington, Geo. D.	Scotland
Eubanks, J. B.	Union
Eller, A. J.	Wilkes
Ellington, S. B.	Rockingham
Edwards, B. O.	Rowan
Ezzell, Dr.	Union
Eagles, C. S.	Wilson
Easly, P. S.	Davidson
Egerton, J. L.	Henderson-Polk
Eason, Oscar	Johnson
Frazier, H. T.	Buncombe
Faucett, T. S.	Alamance
Fletcher, M. H.	Buncombe
Flow, J. W.	Cabarrus
Foil, M. A.	Cabarrus
Flowers, G. E.	Caldwell
Flowers, C. E.	Caldwell
Floyd, A. G.	Columbus
Ferrell, Jno. A.	Wake
Flowers, C. A.,	Washington-Tyrrell
Faison, Jno. M.	Duplin
Felts, R. L.	Durham
Fearington, J. P.	Forsyth
Flynt, S. S.	Forsyth
Floyd, R. P.	Franklin
Fortune, A. F.	Guilford
Fox, M. F.	Guilford
Fleming, M. I.	Martin
Fearing, I.,	Pasquotank-Camden-Dare
Fearing, Zenas,	Pasquotank-Camden-Dare
Finney, J. R.	Yadkin
Frizzelle, M. T.	Pitt
Flippin, R. E. L.	Surry
Flippin, J. M.	Surry
Fenner, E. F.	Vance
Fassett, B. W.	Durham
Faison, I. W.	Mecklenburg, Hon.
Flippin, S. T.	Surry
Gold, Chas.	Rutherford
Graham, W. A.	Haywood
Goodman, E. G.	Brunswick
Gentry, G. W.	Person
Glenn, E. B.	Buncombe
Gouger, G. J.	Cabarrus
Grier, S. A.	Cabarrus
Guin, L. E.	Union
Gardner, G. D.	Buncombe
George, D. S.	Carteret
Gregg, W. T.	Cleveland
Gibbs, N. M.	Craven
Graham, Geo. A.	Cumberland
Graham, B. R.	Duplin
Graham, Joseph	Durham
Gray, E. P.	Forsyth
Garren, R. H.	Gaston
Garrison, D. A.	Gaston
Glenn, H. F.	Gaston
Glenn, L. N.	Gaston
Gilmer, C. S.	Guilford
Gordon, J. R.	Guilford
Gove, Anna M.	Guilford
Grayson, C. S.	Guilford
Greenwood, B. H.	Haywood
Goodman, A. B.	Caldwell
Green, W. W.	Edgecombe
Gilmore, W. D.	Iredell-Alexander
Goodwin, A. W.	Wake
Grady, Earl	Henderson-Polk
Greenwood, S. E.,	Henderson-Polk
Grady, J. C.	Johnston
Griffin, J. A.	Johnston
Graham, W. A.	Mecklenburg
Grantham, W. L.	Robeson
Galey, W. R.	Alamance
Gatlen, O. A.	Bladen

Name.	*County.*
Grin, J. B.	Buncombe
Gill, J. N.	Buncombe
Gibson, M. R.	Robeson
Gilmer, B. H.,	Washington-Tyrrell
Gibbon, Robt. L.	Mecklenburg
Gibson, J. S.	Scotland
Gill, R. J.	Vance
Gilreath, F. H.	Wilkes
Hunnicutt, W. J.	Buncombe
Hunter, W. L.	Mecklenburg
Hardy, Ira M.	Beaufort
Harris, I. A.	Buncombe
Hood, J. S.	Gaston
Hall, P. B.	Gaston
Harris, D. W.	Robeson
Holmes, F. H.	Sampson
Hall, Jas. K.	Burke
Hennessee, E. A.	Burke
Headen, W. E.	Carteret
Highway, S. C.	Cherokee
Highsmith, Seavy	Cumberland
Highsmith, J. F.	Cumberland
Hill, D. J.	Davidson
Hicks, C. S.	Durham
Hicks, W. N.	Durham
Holloway, R. L.	Durham
Harrell, S. N.	Edgecombe
Hammock, J. C.	Forsyth
Harris, J. H.	Franklin
Henderson, R. B.	Franklin
Hunter, M. C.	Gaston
Harper, James H.	Greene
Harrison, Edmund	Guilford
Hilton, J. J.	Guilford
Holt, W. T.	Guilford
Houch, Albert	Burke
Hickman, M. F.	Caldwell
Hughes, Geo.	Craven
Hamrick, T. G.	Cleveland
Hocutt, B. A.	Johnston
Hoggard, W. A.,	Pasquotank-Camden-Dare
Hoggard, T. J.	Pender
Hunter, L. W.	Mecklenburg
Halford, J. W.	Harnett
Hicks, I. F.	Harnett
Hays, Benj. K.	Granville
Hardee P. R.	Granville
Highsmith, Chas.	Harnett
Holt, W. P.	Harnett
Hunter, H. H.	Beaufort
Herbert, W. P.	Buncombe
Hill, J. N.	Cherokee

Name.	*County.*
Hayes, R. R.	Cumberland
Hudson, W. L.	Harnett
Howe, W. B. W.	Henderson-Polk
Harris, A. G.	Hyde
Hamer, E. A.	Cleveland
Hooper, J. O.	Henderson-Polk
Hooks, Thel.	Johnston
Hargrove, W. F.	Lenoir
Hoover, Chas. H.	Lincoln
Hargrove, R. H.	Martin
Hawley, F. O.	Mecklenburg
Henderson, S. M.	Mecklenburg
Hyatt, H. B.	Lee
Hyatt, H. O.	Onslow
Hyatt, A. L.	Onslow
Howell, L. B.	Rutherford
Hobgood, J. E.	Rutherford
Hartsell, F. E.	Stanly
Hunt, C. W.	Transylvania
Hovis, Leighton	Mecklenburg
Harris, A. H.	New Hanover
Harper, Chas. T.	New Hanover
Honnett, J. H.	New Hanover
Hubbard, C. C.	Randolph
Hunter, J. V.	Randolph
Hodgin, H. H.	Robeson
Heilig, H. G.	Rowan
Harris, E. B.	Rutherford
Hicks, Romeo	Rutherford
Haynes, B. M.	Rutherford
Hiatt, H. B.	Randolph
Harper, J. W.	Wake
Holt, I. J.	Warren
Hathway, B. W.	Perquimans
Hathcock, T. A.	Stanly
Hill, W. I.	Stanly
Hall, J. Clegg	Stanly
Hollingsworth, Ed. M.	Surry
Hollingsworth, R. E.	Surry
Harris, F. R.	Vance
Horton, W. C.	Wake
Hassell, J. L.,	Washington-Tyrrell
Halsey, B. F.,	Washington-Tyrrell
Hardison, W. H.,	Washington-Tyrrell
Hill, Lee W.	Davidson
Hughes, Geo. R.	Onslow
Horton, W. P.	Wilkes
Herring, B. S.	Wilson
Harrison, J. S.	Wilson
Holcomb, C. M.	Yadkin
Hutchins, E. M.	Wilkes
Harding, T. R.	Yadkin

Name.	*County.*
Hester, J. R.	Wake
Ivey, W. P.	Caldwell
Irwin, Jno. R.	Mecklenburg
Ingram, C. B.	Montgomery
Irving, J. B.	Mitchell
Jordan, T. M.	Wake
Jett, S. G.	Rockingham
Jonas, J. F.	McDowell
Johnson, Floyd	Columbus
Justice, J. F.	Forsyth
Jarboe, Parran	Guilford
Johnson, A. E.	Buncombe
Jones, R. DuVal	Craven
Jordan, Wm. S.	Cumberland
Julian, Chas. A.	Davidson
Johnson, N. M.	Durham
Jordan, A. C.	Durham
Jenkins, J. H.	Gaston
Jones, J. W.	Guilford
Jordan, G. E.	Guilford
Jones, W. M., Jr.	Guilford
Jones, E. H.	Hyde
John, Peter	Scotland
Jerome, J. R.	Union
Judd, J. M.	Wake
Jordan, T. M.	Wake
Johnson, B. C.	Franklin
Johnson, W. A.	Rockingham
James, W. D.	Scotland
Jordan, C. S.	Buncombe
Johnson, W. M.	Forsyth
Jnat, Francis	Cumberland
Jewett, R D.	Forsyth
Kennedy, G. W.	Duplin
Knox, John, Jr.	Robeson
King, R. M.	Cabarrus
Kent, A. A.	Caldwell
Kapp, H. H.	Forsyth
Knight, W. P.	Guilford
Kirk, Wm. R.	Henderson-Polk
Knight, J. B. H.	Martin
Kirby, Guy S.	McDowell
Kerr, J. D. J.	Sampson
King, M. M.	Transylvania
Kiser, W. C.	Lincoln
Killian, R. B.	Lincoln
King, Parks M.	Mecklenburg
King, M. N.	Durham
Knox, John	Mecklenburg
Knox, A. W.	Wake
Kirkpatrick, L. R.	Robeson
Killan, Wm. D.	Beaufort

Name.	*County.*
Landis, B. L.	Buncombe
Long, E. M.	Martin
Laton, J. F.	Stanly
Long, Geo. W.	Alamance
Lafferty, J. S.	Cabarrus
Lattimore, E. B.	Cleveland
Lee, L. V.	Cleveland
Lawrence, C. S.	Forsyth
Long, H. F.	Iredell-Alexander
Love, W. J.	New Hanover
Lewis, H. W.	Northampton
Love, B. E.	Persons
Love, B. E.	Persons
Martin, S. L.	Rockingham
Lyday, E. A.	Transylvania
Lilly, J. M.	Cumberland
Lane, John L.	Duplin
Landing, J. F.	Duplin
Linville, A. Y.	Forsyth
Lockett, E. A.	Forsyth
Lott, H. S.	Forsyth
Long, John W.	Guilford
Logan, John E.	Guilford
Lee, S. P. J.	Harnett
Long, B. L.	Martin
Lowery, R. L.	Davie
Linville, W. C.	Forsyth
Lassiter, Edgar W.,	Northampton
Lancaster, B. B.	Rutherford
Lafferty, R. H.	Mecklenburg
Lumsden, W. J.,	Pasquotank-Camden-Dare
Lister, J. L.	Northampton
Long, W. T.	Person
Laughinghouse, Chas. O'H.	Pitt
Lovelace, T. B.	Rutherford
Leak, J. J.	Stokes
Lewis, R. H.	Wake
Lamm, I. W.	Wilson
Leinbach, R. F.	Mecklenburg
Luntz, C. M.	Rowan
Moore, J. C.	Caldwell
Moore, B. S.	Mecklenburg
Meisenheimer, T. F.	Anson
Marriner, N. B.,	Washington-Tyrrell
Matherson, R. C.	Rockingham
Meriwether, F. T.	Buncombe
Merrimon, Louise A.	Buncombe
Minor, C. L.	Buncombe
Morris, E. R.	Buncombe
Matthews, J. M.	Cabarrus
Malloy, S. A.	Caswell

Name.	*County.*
Mitchell, W. F.	Cleveland
Maxwell, F. B.	Columbus
Mock, J. H.	Davidson
Morse, L. B., Hon.	Polk
Moser, W. D.	Alamance
Moore, T. V.	Columbus
Mock, F. L.	Davidson
Long, V. M.	Forsyth
Mudgitt, W. C.	Moore
McLeod, Gilbert	Moore
McMillin, J. M.	Moore
McIver, E. M.	Lee
McMillan, B. F.	Robeson
McMillan, J. L.	Robeson
Monk, G. M.	Rowan
Matthews, J. O.	Sampson
Moore, J. L.	Wake
Manning, I. H.	Orange
Morris, J. A.	Granville
Meadows, E. B.	Granville
Mucan, P. J.	Warren
Mucan, G. H.	Warren
Martin, J. F.	Davie
Martin, W. C.	Davie
Mann, T. A.	Durham
Manning, J. M.	Durham
Moore, R. A.	Durham
Moore, K. C.	Wilson
Matheson, J. P.	Mecklenburg
Morrow, W. C.	Cherokee
Meroney, B. B.	Cherokee
Mercer, W. P.	Edgecombe
Malone, J. E.	Franklin
Murphy, W. B.	Greene
Meadows, W. J.	Guilford
Michaux, E. R.	Guilford
Miles, May S.	Guilford
Moseley, C. W.	Guilford
Melvin, W. C.	Harnett
Moore, F. T.	Harnett
Mease, J. H.	Haywood
Mann, J. A.	Hyde
Mann, J. E.	Hyde
Munns, L. A.	Johnston
Meisenheimer, C. A.,	Mecklenburg
Munroe, J. P.	Mecklenburg
Murphy, J. G.	New Hanover
Moorehead, R. P.	Northampton
Morrill, D. S.	Pitt
Moore, W. J.	Randolph
Maness, J. M.	Richmond
Monk, H. L.	Rowan
Morris, G. B.	Wilson
Mebane, W. C.	Surry

Name.	*County.*
Myers, J. Q.	Mecklenburg
Moore, C. E.	Wilson
Moore, E. G.	Wilson
Moore, D. G.	Cabarrus
Monroe, John P.	Lee
Monroe, W. A.	Lee
Matthew, M. L.	Lee
Matthew, J. H.	Lee
Myers, R. W.	Randolph
McLean, Peter	Scotland
McCombs, C. J.	Gaston
McCoy, J. M.	Gaston
Montague, S. S.	Durham
Moore, C. F.	Guilford
McCain, H. W.	Guilford
Mayberry, J. W.	Johnson
Moore, W. H.	New Hanover
Montford, W J.	Onslow
Merrit, J. H.	Person
Michals, A. F.	Person
Michals, C. F.	Person
McBride, H. M.	Rockingham
McFayden, P. R.	Cabarrus
McPherson, J. W.	Alamance
McPherson, S. D.	Alamance
McBrayer, L. B.	Buncombe
McCracken, C. M.	Buncombe
McCampbell, Jno. M.	Burke
McNary, C. B.	Caldwell
McBrayer, T. E.	Cleveland
McGoughen, J. V.	Cumberland
McKethan, Jno. A.	Cumberland
McLean, Chas. E.	Gaston
McAnally, W. J.	Guilford
McKay, J. F.	Harnett
McLean, J. W.	Harnett
McCracken, J. R.	Haywood
McLaughlin, J. E.	Iredell-Alexander
McLaughlin, C. S.	Mecklenburg
McMullan, Oscar	Pasquotank-Camden-Dare
McLean, R. H.	Sampson
McCain, W. R.	Union
McMillan, J. H.	Perquimans
McPhail, W. A.	Robeson
McGhee, J. W.	Rockingham
McKenzie, W. W.	Rowan
McKee, John	Wake
McConnell, J. W.	Mecklenburg
McLean, Allen	Scotland
McAllister, Wm.	Vance
McCullers, J. J. L.	Wake
McKee, Jas.	Wake
McKee, J. W., Jr.	Wake

Name.	*County.*
McKaig, F. G.	Cherokee
McKethan, D. G.	Cumberland
McNeill, J. W.	Cumberland
McLemore, G. A.	Johnston
McManaway, C. G.	Mecklenburg
McLeod, A. H.	Moore
McIver, Lynn	Lee
McNeill, J. M.	Cumberland
McIntosh, F. M.	McDowell
Nicholson, P. A.	Beaufort
Newbern, J. M.	Currituck
Nicholson, W. G.	Iredell-Alexander
Northrop, T. L.	Robeson
Neal, J. Walter	Stokes
Newall, H. A.	Franklin
Noble, R. P.	Johnston
Nelson, R. J.	Martin
Nisbet, W. O.	Mecklenburg
Nicholson, J. L.	Onslow
Norris, Henry	Rutherford
Nicholson, J. T.	Beaufort
Newell, J. O.	Franklin
Noble, R. J.	Johnston
Newell, L. B.	Mecklenburg
Patterson, C. A.	Mitchel
Phillips, C. H.	Randolph
Perkins, F. E.	Vance
Nance, Geo. B.	Union
Neal, John W.	Union
Norman, G. W.	Guilford
Northington, J. M.	Columbus
Nichols, R. E.	Durham
Nalle, B. C.	Mecklenburg
Nesbit, C. T.	New Hanover
Norris, Philip	Rutherford
Orr, C. C.	Buncombe
Orr, Peter B.	Buncombe
Oates, Geo.	Cleveland
Olive, P. W.	Cumberland
Olive, W. W.	Durham
Orr, N. A.	Gaston
Pickett, J. A.	Alamance
Pritchard, John L.	Bertie
Paquin, Paul	Buncombe
Purefoy, Geo. W.	Buncombe
Pritchard, A. T.	Buncombe
Phifer, Ed. W.	Burke
Pemberton, W. D.	Cabarrus
Powell, R. A.	Cumberland
Pharr, T. F.	Cabarrus
Palmer, B. H.	Cleveland

Name.	*County.*
Pollock, Raymond	Craven
Primrose, R. S.	Craven
Patterson, J. F.	Craven
Phillips, J. J.	Edgecombe
Pfohl, S. F.	Forsyth
Prince, D. M.	Scotland
Patrick, G. R.	Gaston
Paddison, J. R.	Guilford
Parker, G. E.	Johnston
Person, J. B.	Johnston
Parrott, James M.	Lenoir
Parrott, W. T.	Lenoir
Petrie, R. W.	Mecklenburg
Peeler, C. N.	Mecklenburg
Pharr, W. W.	Mecklenburg
Patrick, J. E.	Pitt
Poole, C. M.	Rowan
Peeler, J. H.	Rowan
Pate, W. T.	Scotland
Perkins, D. R.	Union
Pendleton, A. S.	ance
Peete, C. H.	Warren
Patter, D. T.	Beaufort
Peacock, W. J.	Davidson
Pierce, S. B.	Durham
Puett, Bessie V.	Gaston
Palmer, R. W.	Lee
Passer, R. G.	Lee
Pate, J. F.	Robeson
Norment, L. A.	Robeson
Pope, H. L.	Robeson
Penny, J. A. J.	Wake
Pegram, R. W. S.	Wilkes
Page, B. W.	Onslow
Pugh, C. H.	Wilkes
Quickel, T. C.	Gaston
Rodman, John C.	Beaufort
Ross, C. E.	Burke
Rhyne, R. E.	Gaston
Robinson, Newton	Bladen
Reed, C. E.	Buncombe
Reynolds, Carl V.	Buncombe
von Ruck, Karl	Buncombe
von Ruck, Silvio	Buncombe
Ringer, P. H.	Buncombe
Rogers, Francis O.	Cabarrus
Royster, S. S.	Cleveland
Rose, A. S.	Cumberland
Ross, Geo. H.	Durham
Reid, R. M.	Gaston
Robinson, Frank	Gaston
Reitzel, C. E.	Guilford
Reitzel, J. R.	Guilford
Richardson, W. J.	Guilford

Name.	*County.*
Roberson, Chas.	Guilford
Russell, E. R.	Buncombe
Riddle, J. B.	Burke
Reed, J. W.	Gaston
Royster, T. H.	Gaston
Rose, A. H.	Johnston
Ray, John	Rockingham
Russell, C. R.	Rutherford
Ross, G. F.	Guilford
Rogers, J. R.	Wake
Reives, J. T.	Guilford
Reaves, W. P.	Guilford
Rhodes, J. S.	Martin
Register, E. C.	Mecklenburg
Reid, W. K.	Mecklenburg
Reedy, Howard	Robeson
Ramseur, G. A.	Rowan
Reid, Geo. P.	Rutherford
Ring, J. W.	Surry
Ray, O. L.	Wake
Rankin, W. S.	Wake
Rher, J. D.	Brunswick
Reeves, A. F.	Buncombe
Rhem, J. F.	Craven
Rochell, J. W.	Davie
Reece, J. M.	Surry
Riddick, J. G.	Wake
Reynolds, T. F.	Haywood
Royster, H. A.	Wake
Royster, W. I.	Wake
Royall, M. A.	Yadkin
Russell, S. L.	Yadkin
Russell, F. E.	New Hanover
Rucker, A. A.	Rutherford
Surles, E. C.	Robeson
Smoot, J. B.	Rutherford
Stack, R. E.	Mitchell
Shields, H. B.	Moore
Swett, W. P.	Moore
Snipes, E. P.	Lee
Spencer, F. B.	Rowan
Sloan, Henry	Sampson
Sikes, G. L.	Sampson
Stevens, J. O.	Sampson
Strickland, J. A.	Wake
Stewart, E. E.	Wake
Shore, C. A.	Wake
Spruill, J. L.,	Washington-Tyrrell
Spruill, James L.,	Washington-Tyrrell
Stafford, W. G.	Alamance
Staley, S. W.	Beaufort
Sawyer, James	Buncombe

Name.	*County.*
Sevier, Jos. T.	Buncombe
Smith, Owen	Buncombe
Stevens, M. L.	Buncombe
Smoot, J. E.	Cabarrus
Smith, W. F.	Columbus
Staton, L. L.	Edgecombe
Speight, R. H.	Edgecombe
Spainhour, E. H.	Forsyth
Spencer, W. O.	Forsyth
Strickland, E. E.	Forsyth
Summers, C. L.	Forsyth
Sloan, J. M.	Gaston
Sevier, D. E.	Buncombe
Stout, N. H.	Craven
Sigman, F. G.	Rowan
Saliba, M. M.	Wilson
Street, M. E.	Moore
Sweeney, John	Rockingham
Stanley, J. H.	Johnston
Spoon, O. A.	Guilford
Stamey, E. L.	Greene
Stanton, D. A.	Guilford
Sexton, C. H.	Harnett
Stringfield, Thos.	Haywood
Stringfield, Sam L.	Haywood
Sanderfood, J. F.	Granville
Salley, E. M.	Henderson-Polk
Saunders, J. H.	Martin
Smithwick, J. E.	Martin
Simmons, John O.	Mecklenburg
Stone, J. E.	Caldwell
Shoemaker, H.	Cleveland
Stroud, W. A.	Durham
Smith, F.	Harnett
Swindell, W. L.	Hyde
Shamberger, J. B.	Montgomery
Sutton, C. W.,	Pasquotank-Camden-Dare
Sawyer, C. W.,	Pasquotank-Camden-Dare
Sawyer, W. W.,	Pasquotank-Camden-Dare
Swann, J. F.	Person
Schaub, O. P.	Person
Skinner, L. C.	Mecklenburg
Stamps, Thos.	Robeson
Summerell, E. M.	Rowan
Stokes, J. E.	Rowan
Shaw, Wm. G.	Scotland
Smith, J. B.	Surry
Stone, Wm. M.	Surry
Stevens, S. A.	Union
Stewart, H. D.	Union
Sorrell, L. P.	Wake
Stevens, Ralph S.	Wake

Name.	*County.*
Speight, J. W.,	Washington-Tyrrell
Somers, L. P.	Wilkes
Shore, Thad. W.	Yadkin
Strong, C. M.	Mecklenburg
Summers, J. W.	Mecklenburg
Sisk, J. A.	Montgomery
Stancell, R. H.	Northampton
Swindell, C. L.	Wilson
Skinner, L. C.	Pitt
Smith, W. A.	Wilson
Smith, A. W.	Perquimans
Sumner, T. W.	Henderson-Polk
Sain, J. W.	Lincoln
Tucker, J. H.	Mecklenburg
Terrell, A. J.	Buncombe
Timberlake, R. E.	Buncombe
Taylor, J. T.	Rockingham
Tuttle, A. F.	Rockingham
Taylor, T. G.	Rockingham
Tayloe, David T.	Beaufort
Taylor, I. M.	Burke
Taylor, George	Gaston
Thompson, A. T.	Montgomery
Thornton, Irene	Cumberland
Teague, R. J.	Durham
Thigpen, W. J.	Edgecombe
Turner, J. A.	Guilford
Turner, J. P.	Guilford
Tankersley, J. W.	Guilford
Tull, Henry	Lenoir
Taylor, Wm. L.	Granville
Thompson, C. D.	Lincoln
Thomas, Geo. G.	New Hanover
Taylor, J. M.	Alamance
Taylor, A. K.	Beaufort
Taylor, Jackson	Beaufort
Tennent G. S.	Buncombe
Taylor, B. C.	Lincoln
Terry, R. Z.	Mecklenburg
Thompson, Cyrus	Onslow
Thompson, N. A.	Robeson
Trantham, H. T.	Rowan
Twitty, J. C.	Rutherford
Thompson, J. B.	Rutherford
Thompson, W. A.	Rutherford
Taylor, W. S.	Surry
Templeton, Jas. M.	Wake
Tucker, H. McKee	Wake
Turner, J. M.	Wilkes
Upchurch, R. T.	Vance
Utley, H. H.	Harnett
Underwood, O. E.	Sampson
Vestal, W. J.	Davidson
Vick, Geo. D.	Johnston
Willcox, J. W.	Moore
Wright, Hull	New Hanover
Walker, W. E.	Alamance
Walker, L. A.	Alamance
Weaver, H. B.	Buncombe
Whittington, W. P.	Buncombe
Williams, J. H.	Buncombe
Wallace, J. W.	Cabarrus
Williams, J. W.	Martin
Watkins, F. B.	Burke
Warlick, E. S.	Burke
Wilson, C. L.	Caldwell
Whitfield, W. C.	Pitt
Whittaker, A. C.	Guilford
Ward, J. E.	Martin
Webb, Ben. G.	Cherokee
Wood, J. W.	Cleveland
Withers, S. M.	Columbus
Willingham, B. J.	New Hanover
Woodard, C. A.	Durham
Walton, C. B.	Edgecombe
Williams, J. D.	Forsyth
Wilkins, S. A.	Gaston
Wilson, F. G.	Gaston
West, Albert	Greene
Whittington, W. W.	Greene
Wilson, A. R.	Guilford
Williams, John Roy,	Henderson-Polk
Williams, John A.	Guilford
Wells, J. S.	Alamance
Windley, C. T.	Beaufort
Watson, Walter	Craven
West, M. T.	Cumberland
Williams, J. M.	Duplin
Wooten, A. M.	Edgecombe
Watson, Leon	Lee
Woodard, A. G.	Johnston
Wakefield, W. H., Jr.,	Mecklenburg
Whisnant, W. F.	Mecklenburg
Wallis, W. J.	Transylvania
Williams, B. B.	Guilford
Way, J. Howell	Haywood
Willis, A. P.	Haywood
Wilson, J. E.	Haywood
Waldrop, J. G.	Henderson-Polk
Windley, R. E.	Hyde
Wharton, L. D.	Johnston
Wooten, R. W.	Lenoir
Whitaker, F. A.	Lenoir
Wright, J. V.	Lincoln

Name.	*County.*
Warren, W. E.	Martin
Wakefield, W. H.	Mecklenburg
Walker, C. E.	Mecklenburg
Whisnant, A. M.	Mecklenburg
Witherbee, W. D.	Mecklenburg
Wooten, W. H.	Mecklenburg
Wessell, J. C.	New Hanover
Woodley, W. T.	Mecklenburg
Williams, Claude B.,	Pasquotank-Camden-Dare
Walker, H. D.,	Pasquotank-Camden-Dare
est, R. M.	Rowan
Whitehead, John	Rowan
Wright, Thos.	Mecklenburg
Wharton, C. R.	Rockingham
Warren, J. W.	Perquimans
Webb, S. E.	Rockingham
Woodson, C. W.	Rowan
Wiseman, C. P.	Rutherford

Name.	*County.*
Whitley, D. P.	Stanly
Watson, J. B.	Wake
Whitley, A. D. N.	Union
Ward, W. H.,	Washington-Tyrrell
Whitaker, Joel D.	Wake
Williams, A. F.	Wilson
Williams, R. B.	Sampson
Young, L. B.	Wake
Young, R. S.	Cabarrus
York, A. A.	Davidson
Yarborough, R. F.	Franklin
York, H. B.	Martin
Young, G. E.	Rutherford
Young, J. J.	Johnston
Yow, I. A.	Cabarrus
Zimmerman, C. St. V.	Buncombe
Zimmerman, R. U.	Davidson

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